HUMBAUR

MAKES IT HAPPEN

OPERATING MANUAL

PART 1 ▶ GENERAL CAR Program

1000 - 8500 SERIES

EN

humbaur.com

Humbaur GmbH
Mercedesring 1
86368 Gersthofen
Germany

Tel. + 49 821 24929-0 l info@humbaur.com
Fax + 49 821 249-100 l www.humbaur.com

Your dealer:

Name _____

Address _____

Tel. _____

E-mail _____

▶ 

Please enter the name of your dealer.

Your trailer:

Model _____

Type (abbreviation) _____

Numberplate _____

WHD

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

VIN

Trailer components:

Axles(s)
(Type / manufacturer) _____

Overrun device
(Braked trailer) _____

Ball trailer coupling _____
(Type)

Drawbar _____
(Type)

Please enter your trailer type and the identification.
Please enter the manufacturer and type of trailer components installed.
You will find the dimensions / technical data of your trailer in the vehicle documents: Registration certificate part 1 & part 2

Owner 1

First name, Last name

Date of birth

Address

Street, House no.

City

Telephone

Date (from - to)

Owner 2

First name, Last name

Date of birth

Address

Street, House no.

City

Telephone

Date (from - to)

Owner 3

First name, Last name

Date of birth

Address

Street, House no.

City

Telephone

Date (from - to)

e.g. Special equipment

Notes on use

We would like to congratulate you on your new Humbaur trailer and thank you for the trust you have placed in us.

This operating manual will help you use the vehicle for many years and will allow you to help yourself should any problems occur.

This operating manual must be carefully read, understood and complied with in full by anyone who is responsible for the Humbaur GmbH vehicle and its modules.
Humbaur GmbH accepts no liability for damage or failures which arise from disregarding this manual!

Please read and comply with this operating manual with all instructions, warnings and tips before driving for the first time!

Please note that all illustrations are representative and may differ from the actual appearance / equipment.

Please read and comply with the operating manuals for all components, such as axles, supports, electrical cable winch, electrical hydraulic unit, additional equipment, etc.!

PART 1

This operating manual “Trailers up to 3.5 to (Part 1 - General)” is intended for you as the user of a ready-to-use trailer.

It provides detailed steps on how to handle a trailer up to 3.5 to.

It contains all relevant details on operation, care / cleaning, maintenance, troubleshooting and decommissioning / disposal of a Trailer up to 3.5 to.

PART 2

You will find all the additional information on special features (e.g. Accessories) in a separate operating manual (Part 2) for your respective trailer.

You will find the special operating manual (Part 2) on the Internet at **www.humbaur.com** under the tab: Downloads – Operating manuals.

Complete documentation

The complete technical documentation is part of the product and should be kept in the towing vehicle for reference purposes at all times.

Key details for the handling, operation and the requisite care and maintenance of the trailer are referred to in this operating instruction manual, and errors can only be avoided and trouble-free operation guaranteed if you are familiar with them.

Errors excepted. The manufacturer:

Humbaur GmbH
Mercedesring 1
89368 Gersthofen (Germany)

reserves the right make technical changes to the design, equipment and accessories with respect to the information and illustrations in the operating manual.

No claims whatsoever can be derived from the information, illustrations and descriptions.

Obligations of the operator

The trailer may only be operated in perfect condition.

Ensure that the operating manual is included with the trailer e.g. if it is sold.

Only utilise trained or instructed personnel.

Ensure that the operating manual is complied with in all life cycle phases of the trailer and that the prescribed personal protective equipment (see “Personal protective equipment” on page 15) is worn.

Provide the requisite operating and auxiliary materials.

This operating manual is part of the product and also serves as a **CHECK LIST** for the regular inspections of your trailer.

User group / personnel qualification

The trailer should only be operated by users with the following prerequisites and knowledge:

- Be in possession of a valid driver's license which includes towing a trailer.
- Be in a healthy physical state (without any limitations, e.g. wheelchair user).
- Practical experience with towing (e.g. initiating braking, manoeuvring backwards).
- Knowledge of load securing / secure transport of a range of goods.
- Knowledge of the German Road Traffic Act (StVO) and German Road Traffic Licensing Regulations (StVZO).

Keyword index

Use the **keyword index** from page to search for specific topics.

Refer to the technical documentation of the installed components for additional information.

1 Safety

Intended use

HUMBAUR vehicles and vehicle bodies are constructed in accordance with the latest state of technology and recognised safety regulations. If not used as intended could pose a risk to the user of third parties and could result in material damage.

HUMBAUR vehicles and vehicle bodies are manufactured solely for prescribed transport applications in accordance with carriage regulations.

Intended use includes complying with regulations, descriptions and information providing in this operating manual and with any third-party supplier operating and maintenance instructions.

Ensure you ask Humbaur GmbH or any HUMBAUR authorised workshop before making any retrospective changes to your HUMBAUR vehicle or vehicle body.

Only attach any accessory components to your HUMBAUR vehicle or vehicle body after consulting Humbaur GmbH or a HUMBAUR authorised workshop.

Regularly presenting the trailer for a general inspection and safety tests carried out by qualified personnel and proof of this are a prerequisite for driving it on public roads.

The operator / user of the trailer is responsible for regular care / cleaning and maintenance.

HUMBAUR vehicles / vehicle bodies all have a VIN. If you have any queries and when placing orders for spare parts, you should always quote the VIN!

The manufacturer Humbaur GmbH rejects any liability for any damages incurred by non compliance - the user bears the risks for this alone.

Permitted are:

- Transporting goods.
- Operation with a permitted vehicle and a permitted coupling unit.
- Only operate if in perfect technical condition.
- Comply with all warning / safety notices on the trailer and in the complete product documentation (operating instructions, licensing papers, etc.)
- Driving with a properly secured load.
  The driver of the towing vehicle is responsible for securing the load and the equipment for load securing.
- Driving while complying with the max. permissible top speed by law as well as a suitable speed for bad road or weather conditions.
- Loading and unloading in a secured area or with additional safeguarding measures suitable for public roads.
- Operating within the permissible gross weight (See information in registration certificate part II).
- Operating with even weight distribution of load.
- Securing the trailer against rolling away when parked.
- Regular care / cleaning of your trailer removing dirt / foreign bodies.
- Regularly presenting your trailer for technical examination / inspection.
- Complying with the maintenance and repair work as specified by the manufacturer.

The following conditions for operating a trailer up to 3.5 to within the context of “Intended use” must be met:

1. Trailer licensing

- Licensing is country-specific.
- As a general rule, you need to insure your trailer and get a permit to use it on public roads.

2. Driving license for driving with a trailer

- Depending on the individual country, it may be necessary to have a specific driving license to drive with a trailer.
  Find out about the specific conditions in your country.

3. Presence of vehicle documents and type plate

- Carry the vehicle documents for your trailer with you. Check that the type plate is in place.

4. Periodic examination / general inspection

- The regulations on a general inspection are country-specific. Please find out,
  - when a general inspection is required and
  - where you can have a general inspection carried out.
- Carry out regular maintenance / repair.

5. Driving at a speed of 100 km / h (in Germany)

- A special permit is required for driving at a speed of 100 km / h.
  You will find information about this at **www.humbaur.com/ Useful information**.

Foreseeable misuse

Any use extending beyond the prescribed transport applications is regarded as other than intended.
This applies to all models.

- Transporting people.
- Transporting animals is types of trailers not designated for animal transport.
- Transporting hot materials (e.g. tar).
- Transporting goods which are subject to special legislation and / or require special types of vehicle (e.g. chemicals, foodstuffs, hazardous goods).
- Loading with a payload that is too heavy.
- Driving with poorly secured / unsecured load.
- Driving with a poor load distribution (one-sided, spot loading).
- Driving at an unsuitable speed in bad weather as well as on a bad road surface.
- Driving with vehicle body not closed (covers, drop side, side wall extensions, tarpaulin, etc.).
- Driving with a faulty lighting system or malfunction of the lighting system.
- Exceeding the max. permissible axle / drawbar and trailer load.
- Not reaching the minimum drawbar load (negative drawbar load).
- Making constructional changes to the trailer not approved or authorised by the manufacturer.
- Using unapproved spare parts or accessories.
- Removing the type plate or VIN on the trailer or making them illegible.
- Exceeding the max. permissible top speed of 80 km / h or 100 km / h respectively.
- Parking the trailer without taking safety precautions against it rolling away, such as applying the hand brake, using wheel chocks.
- Operating the trailer with visible wear of parts or breakage of safety-relevant components and accessories.
- Operating the trailer when it is damaged, which can cause danger on public roads and could also lead to personal injury.
- Passing on the trailer without handing over the operating manual or providing an explanation of the known residual risks.
- Maintenance of safety-relevant components, such as brakes, drawbar, hydraulic system, etc. by a layperson.

As the manufacturer, we do not accept any liability for personal injury or material damage caused by foreseeable misuse.

Disclaimer

Any liability of the manufacturer becomes null and void if:

- the trailer and its components are altered without authorization.
- Original parts or conversion parts / accessories approved by Humbaur GmbH are replaced by other components.
- retrospective changes have been made to the trailer (e.g. new drill holes in the frame or the reboring of existing drill holes in the frame). This is considered by Humbaur GmbH to be a structural change, and the type approval therefore becomes null and void.
- Non-approved accessories or third-party spare / component parts which are not original HUMBAUR parts are attached or installed. The type approval of the trailer, possibly even the insurance cover, becomes null and void.
- care and maintenance intervals prescribed by the manufacturer are not complied with.

Any risks and liability exclusions resulting from this also exist if:

- Acceptance inspections have been carried out by inspectors / authorised experts of the technical inspection authorities or officially recognised organisations.
- Official approvals are available.

The warranty covers

Defects that occur during proper use of the trailer as specified, or which are design related or can be attributed to material faults.
Repairs carried out during the guarantee period do not extend it. As the contracting party, the dealer is responsible for the warranty.

Requirements

Original replacement parts must be used for repairs. Repairs must be carried out by a specialist workshop. The maintenance instructions and regulations of the manufacturer as listed in this operating manual must be observed.

Defects must not be attributable to

- Non-compliance with technical and legal regulations listed in this operating manual, improper use of the trailer of lack of experience of the user.
- Unauthorised alterations to the trailer and the use of fittings not approved by Humbaur GmbH. These will invalidate the warranty.
- Non-compliance with the respective statutory regulations.

The following are not defects

Each trailer is a hand-made product. Despite the greatest of care, minor superficial traces which have no effect on the intended use can occur during assembly. Stress cracks in the surface (hairline cracks) caused during manufacture cannot be avoided. These hairline cracks have no effect on stability or the use of the trailer.
The small gap between the drop sides and loading bridge required for it to work is also not considered to be a defect.
Polyester components are not 100% colour-fast. Here, too, UV and weather effects can colour changes.
Rubber parts will degenerate when exposed to UV light; it is also possible for small cracks to form or for the surface to fade.
Parts coated with the electrocoat process are not colour-fast. They can fade as a result of UV irradiation.
Galvanised parts are not normally shiny as they lose their bright finish after a short time. This is not a defect but rather a desired effect, as full protection against rusting of the metal is only guaranteed after oxidation.
Wood is a natural material. That is why despite the various types of processing and coating, it can be subject to natural weather-dependent expansion or shrinkage which can cause tension. Wood grain and irregularities are normal for this natural material and can appear on the surface. Colour changes are also possible as a result of UV irradiation and weathering effects. A manufacturing tolerance is specified for the thickness of the wooden components used. Claims will not be accepted for deviations within the tolerance.
As the trailers are not generally insulated, temperature fluctuations can result in the formation of condensation under tarpaulins and polyester covers. In this case, adequate ventilation should be provided to prevent mould growth.
Furthermore, the trailers are not 100% watertight. Water ingress at doors, flaps and windows is still possible, even with extremely careful workmanship and the use of rubber seals.

The warranty will not be valid if

- The operating, maintenance, cleaning and inspection regulations are not complied with for technical changes to the trailer.
- In the event of independently added fittings and superstructures which have not been approved by Humbaur.
- In the event of overloading and improper use of the trailer.
- If non-original Humbaur replacement parts are used.
- If the safety instructions on the trailer are not observed.
- If the service intervals are not adhered to, including for Humbaur-fitted parts such as the axle, brakes, drawbar, hydraulic systems etc.
- In the event of incorrect surface treatment of the materials used.
- In the event of continued use of the trailer even though defects have already been detected and reported and the use has been prohibited by the manufacturer until repairs have been carried out.
- In the event of continued use of the trailer with known defects where repair is not possible or is time-consuming or is only possible with significant additional expense and reduced function.

The warranty does not include

- Expenditure for ongoing maintenance.
- Costs due to normal wear and tear or after not being used for a long time.
- Faults that can be attributed to not treating the trailer as specified.
- Defects that can be attributed to the use of non-original Humbaur replacement parts.
- Defects as a result of an improper repair.
- Defects that can be attributed to structural alterations or assembly work on the vehicle.
- Damage which can be traced back to snow and water loads on tarpaulin / plywood or poly bodies.
- The manufacturer reserves the right to make design changes.

Sources of danger

It is absolutely essential to comply with the following points:

- Coupling and uncoupling the trailer - prohibited to stand in the danger zone
- Loading and unloading the trailer - prohibited to stand in the danger zone
- Driving with unsecured support devices
- Driving with unlocked drop sides / doors / flaps / ramp walls
- Clearance heights on the route, while loading and unloading
- Exceeding the permissible gross weight or one-sided overloading through incorrect loading
- Poorly secured or unsecured goods and / or body components
- Reversing - keep an eye on the area behind the trailer
- Excessive turning when manoeuvring e.g. on turntable trailers
- Overloading the trailer, axles and brakes
- Overstressing caused by fitting incorrect wheel and tyre sizes
- Use of wheels with incorrect offsets, one-sided run-out or centrifugal imbalance
- Overstressing as a result of reckless and inappropriate driving or handling
- Impact and shock stress of the axles
- Speed inappropriate for the road conditions and the loading status of the trailer, especially around bends
- The parked trailer can roll away, tip or sink in on soft, uneven ground
- Non-compliance with the conditions for driving with 100 km/h permit
- Driving on terrain with steep inclines
- Loading / unloading of the trailer in an area with a steep gradient
- Inadequate cleaning of the cargo bed after every use

For trailers which can be tipped / lowered

- Standing under an unsecured cargo bed
- Jerky braking during tipping / lowering process
- Driving with a tipped / raised cargo bed
- Tipping the cargo bed without adequately observing the area at the rear / side
- Tipping out the load too close to a slope or excavation pit
- Standing on a tipped / moving cargo bed
- Tipping the cargo bed on uneven, soft ground
- Tipping viscous load materials e.g. asphalt, soil, loamy sand
- Tipping large rocks
- Tipping with an inclined combination
- Driving vehicles onto the cargo bed without paying attention to the centre of gravity of the vehicle driving on

In the body area

Close and secure all body components, such as:

- Drop sides
- Tailgate / ramp door
- Doors / flaps
- Cover net / tarpaulin
- Toolbox
- Access ladder / folding step
- Ensure that the load distribution is balanced / even

In the chassis area

Note the following in general:

- Lock the coupling properly
- Check that the ball head coupling and the ball head coupling are not damaged
- Establish the electrical connections
- Check the trailer lights, repair faulty lights
- Retract the support devices and lock them
- Check the tyres and rims for damage
- Check the tyre pressure, including the spare wheel
- Check the tightening torque of the wheel nuts
- In the case of a new trailer, re-tighten the wheel nuts after 50 km and after the first journey with a load
- Secure the: spare wheel / spare wheel holder, wheel chock
- Comply with the permissible gross weight
- Check that all plates and stickers are present and clean

Safety first!

In this manual, you are informed about the different degrees of risk as follows:

Signal words

DANGER

Possible risk with high level of risk

Not preventing this risk would result in fatal or serious injury.

WARNING

Possible risk with medium level of risk

Not preventing this risk could result in fatal or serious injury.

CAUTION

Possible risk with low level of risk

Not preventing this risk could result in slight or minor injury.

NOTICE

Possible risk of material damage

Not preventing this risk could result in material damage.

General mandatory signs
Indicates information which must be noted and complied with to ensure safe use.

Pass all warning and instructions on to other users or to the support staff as well!

Text sign

You will find the following symbol in front of the text in the manual:

► (arrow) Call to action

– (line) List

1. (number) List of components

Warning signs used

The following warning signs may be used in this operating manual and on the product.

Pay attention to these warning signs and in this case, act with particular care.


Warning about danger points!
Be careful - people could be injured.


Risk of crushing!
For limbs such as: Hands / fingers / feet.


Risk of crushing!
For body / body parts.


Risk of falling!


Risk of electric shock!
Dangerous voltage.


Risk of impact!
Falling objects.


Burn hazard!
Hot surfaces.


Risk of suffocation!
Lack of oxygen.


Risk of chemical burns!
Leaking battery acid.


Risk of being poisoned!
Toxic materials.


Risk of injury!
Obstacles at head height.


Risk of slipping!
Wet surfaces.


Risk of tripping!
Obstacles on moving surfaces.


Risk of explosion!
Explosive operating materials.

Personal protective equipment

Wear the stipulated personal protective equipment (PPE) for all the work described in this manual.

This includes the following:


Safety shoes, sturdy shoes


Protective gloves


Safety helmet


Safety goggles


High-visibility clothing, high-visibility vest


Protective mask, breathing protection


Hearing protection


Protective clothing

Mandatory signs

Keep to the following commands / calls for action for all the work described in this manual.


Important note!
Note and comply with to ensure safe use.


Read instructions for use beforehand.


Wash hands thoroughly.


Disconnect from the mains before working on components which conduct voltage.


Ensure air circulation.


.
Carry out work in 2-man operation.

Mandatory signs

Keep to these prohibitions.


Climbing up prohibited.


Reaching in prohibited.


Contact / touching prohibited.


Standing on surfaces prohibited.


Open ignition points prohibited,
e.g. cigar, cigarette lighter.


Spraying with water prohibited,
e.g. High-pressure cleaner.


Access prohibited for unauthorised persons.


Stepping between towing vehicle and trailer prohibited.


Allowing trailer to run into towing machine prohibited.

Other important pictograms

Pay attention to the following pictograms for proper disposal as well as to provide first aid in an emergency.

Problem waste!
Disposal in household waste not permitted.

Risk of polluting the environment.

Proper disposal of old oil,
Do not dispose of old oil in the environment.

Proper disposal of old tyres,
Do not dispose of old tyres in the environment.

Immediately rinse eyes with plenty of water.

Seek medical advice.

Traffic signs regarding heights

Pay attention to the following important traffic signs on height limits on public roads.

Max. vehicle height!
This height may not be exceeded.

Caution - Height limit at bridges / underpasses!

Tunnel - limited height!
Pay attention to the max. height stated.

Read / comply with prior to commissioning!

As the operator of a trailer, you are obliged to comply with national and international health and safety requirements.

– In Germany, the German Road Traffic Act (StVO) and Product Safety Act (ProdSG) apply as well as their regulations.
– Any additional unauthorised added structures on the trailer can increase the potential risk.
– Only use original HUMBAUR spare parts and accessories.
– Find out which accessories you are allowed to attach without authorisation and what needs to be carried out in a specialist workshop.

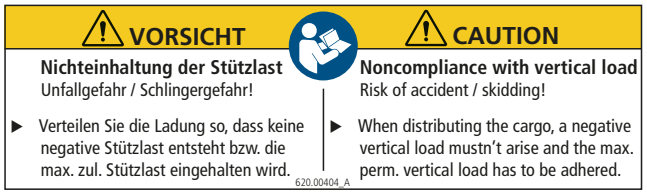
Furthermore, as a road user, you are obliged to observe all national regulations for driving a vehicle with trailer and to comply with your obligations as the owner of a commercial vehicle.

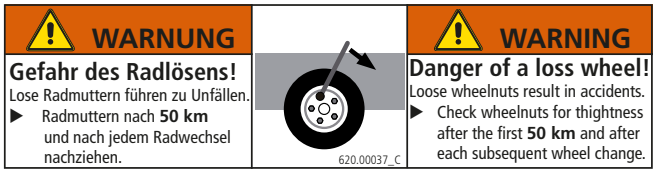
– This includes carrying out regular maintenance, care and periodically subjecting your trailer to a technical general inspection.

Stickers on the product

Your attention is drawn to the residual risks on the trailer.

► Pay attention to the instructions and comply with the max. values / forces specified.





For people

WARNING

Children playing in the vicinity of your trailer

Trailers are not toys! Children are unable to properly assess the risks associated with a trailer and could injure themselves playing with the trailer.

► Do not let children play unsupervised near your trailer.
► Keep children well away when manoeuvring with the trailer.

WARNING

Not complying with safety / warning notices!

Ignoring safety / warning notices and not following the steps of action can lead to accidents resulting in personal injury. Incorrect operation can make you injure yourself and other people.

► Read the operating manual carefully and completely.
► Pay attention to all the safety advice and warning labels on the product itself and warning notices throughout the documentation.
► Comply with the steps for handling.

While driving

WARNING

Excessive speed / speed not adapted!

The load could come loose and fall off - risk of snaking / accidents!

- ► Pay attention to the national regulations in your country regarding permissible top speed.
- ► Keep to the max. permissible top speed for car / trailer combinations.

WARNING

Poor road / extreme weather conditions!

If the road surface is uneven, has potholes, or if the weather is bad, e.g. storm, snow, slipperiness, ice, hail, your trailer could start snaking - risk of an accident!

- ► Adapt your speed to the prevalent road and weather conditions.

WARNING

Gusts of wind / side wind!

In the event of gusts of wind / side winds which can occur near bridges, tunnels, cuttings through woods, sound protection walls or when overtaking lorries, if you steer sharply it could cause your trailer to start snaking - risk of an accident!

- ► Slowly reduce your speed and adapt your driving to the weather conditions.

WARNING

Unsecured / poorly secured load!

The load can shift during the trip and could unbalance the trailer or could be directly thrown off the trailer.

- ► Tie down the load before driving off.
- ► Ensure that the load is adequately secured when taking a break.
- ► Pay attention to national regulations on load securing.

WARNING

Structure too high on the trailer!

Loading the trailer too high (load, accessories) could be ripped off when driving through tunnels, under bridges, through underpasses etc. - risk of an accident!

- ► Before driving off, make sure that the max. total height is not exceeded.
- ► Before driving into a tunnel, an underpass or towards a bridge, pay attention to the traffic signs with the max. permissible vehicle height.

WARNING

Objects on the trailer body!

Objects such as branches, ice, snow, etc. can be thrown on the road during the journey – accident risk!

- ► Remove all objects, such as branches, ice, snow, water loads etc. from the body of the trailer.

WARNING

Worn tyre profile / incorrect tyre pressure!

The tyres can burst when driving along and the trailer will start to break away. Breaking distances get longer - risk of snaking / an accident!

- ► Regularly check the tyres.
- ► Check the tyre pressure, profile depth and condition of the tyres.

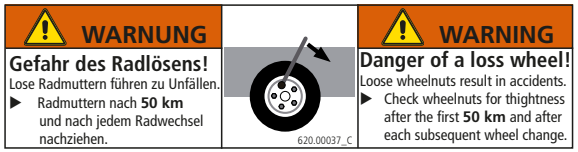
WARNING

Loose wheel nuts / wheel bolts!

The wheel nuts / wheel bolts could come loose.

The trailer could lose a wheel - risk of snaking / an accident!

- ► After the first 50 km, after the first drive with a load, and every time after changing the tyres, tighten the wheel nuts / wheel bolts.
- ► Check that the wheel nuts / wheel bolts are tight at regular intervals.



►

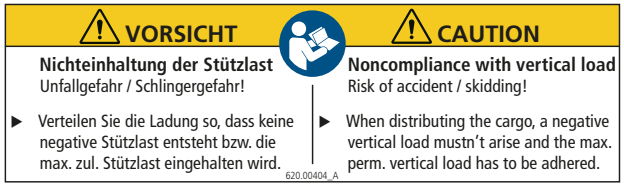
During loading / unloading

CAUTION

Non-compliance with the drawbar load!

Exceeding the max. permissible drawbar load / not reaching the min. drawbar load can cause accidents - risk of snaking!

- ► Distribute the load so that no negative drawbar load is created or respectively, that the max. permissible drawbar load is complied with.
- ► Do not exceed the max. permissible drawbar load of the towing vehicle and the trailer coupling.
- ► Observe the information on the maximum permissible drawbar load in your vehicle papers and the trailer coupling.
- ► Observe the information on the maximum permissible drawbar load in the COC papers, Section 19.



►

CAUTION

Worn trailer coupling!

A worn trailer coupling leads to poor road handling of the trailer - risk of snaking!

- ► Make sure that the coupling is not worn / deformed before driving off.
- ► Carry out regular maintenance of the coupling to prevent wear.

CAUTION

Inadequate / faulty lighting!

It is difficult to see the trailer or it will not be seen in time by other road users - risk of accident!

- ► Before setting off, check that the lighting on the trailer is working and is not covered by the load.
- ► Remedy any defects to the lighting.

CAUTION

Driving without the safety cable / arrester cable attached!

In the event of the trailer becoming detached or if the coupling fails, the trailer will not be braked / caught.

- ► Connect the safety cable / arrester cable to the towing vehicle.
- ► Pay attention to the national regulations on this.

WARNING

Inadequate lighting!

When loading / unloading, the lighting on the trailer could be covered up - meaning the trailer is difficult for road users to see (at dusk /in the dark) - risk of accident!

- ► Make sure that road traffic safety is not impaired when loading / unloading the trailer.
- ► If necessary, use additional signalling devices, e.g. signs, barriers.

When parking

WARNING

Unsecured trailer!

The trailer can start moving out of control and could injure people - risk of accident!

- ► Secure the trailer against rolling away.
- ► Place the wheel chocks under the wheels.
- ► Apply the parking brake.
- ► Park the trailer on ground which is as level as possible (not on a slope).
- ► Park the trailer so that it does not pose any further risks.
- ► Secure the trailer against being used by unauthorised third parties (anti-theft device).

WARNING

Standing / hanging trailer on its end!

The trailer could tip up and fall down.

People could be knocked / crushed.

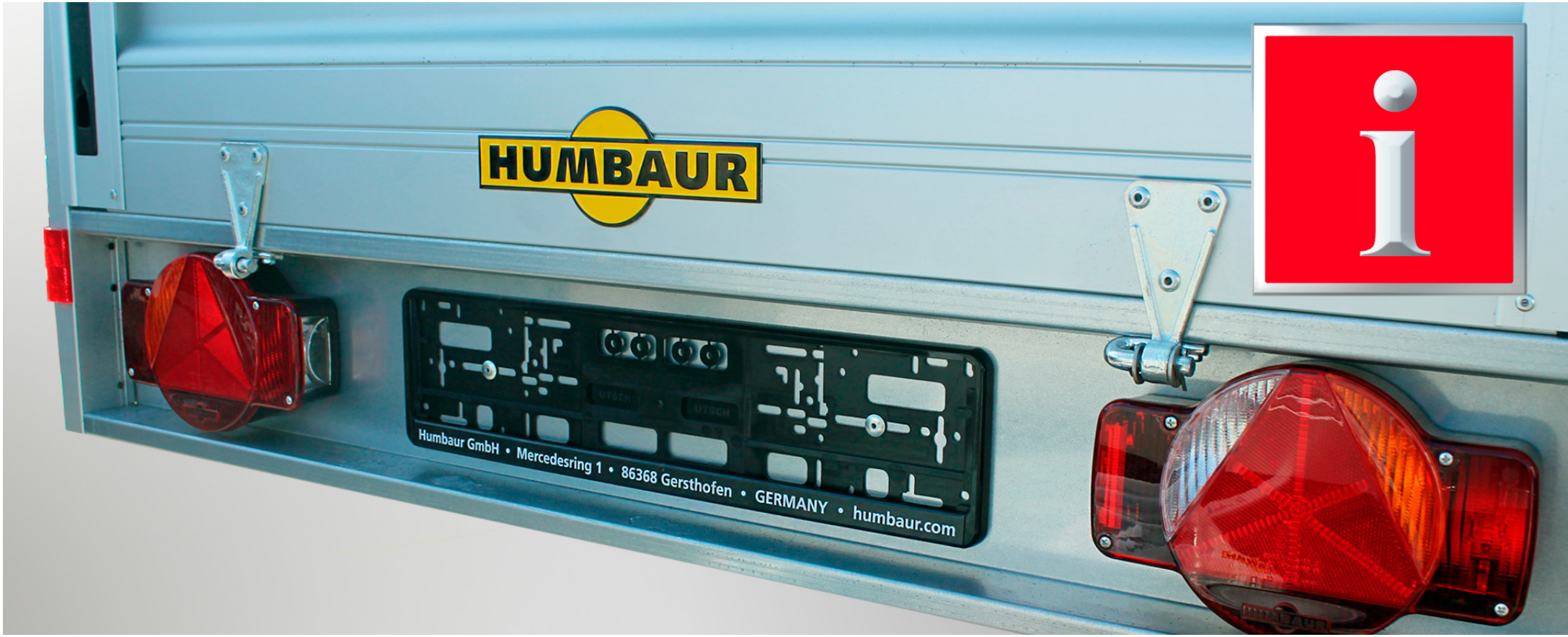
- ► Secure the trailer against falling over.
- ► Tie the trailer to a solid wall.

WARNING

Trapped in the box body!

Risk of suffocation due to lack of oxygen.

- ► Before locking closed bodies, make sure that no people / animals are inside them.
- ► Open windows / hoods when spending time inside.
- ► Where applicable, check that cooling units, heaters etc. are switched off.
- ► Pay attention to the sticky label on the inside.



2 General information

Basic components Car trailers

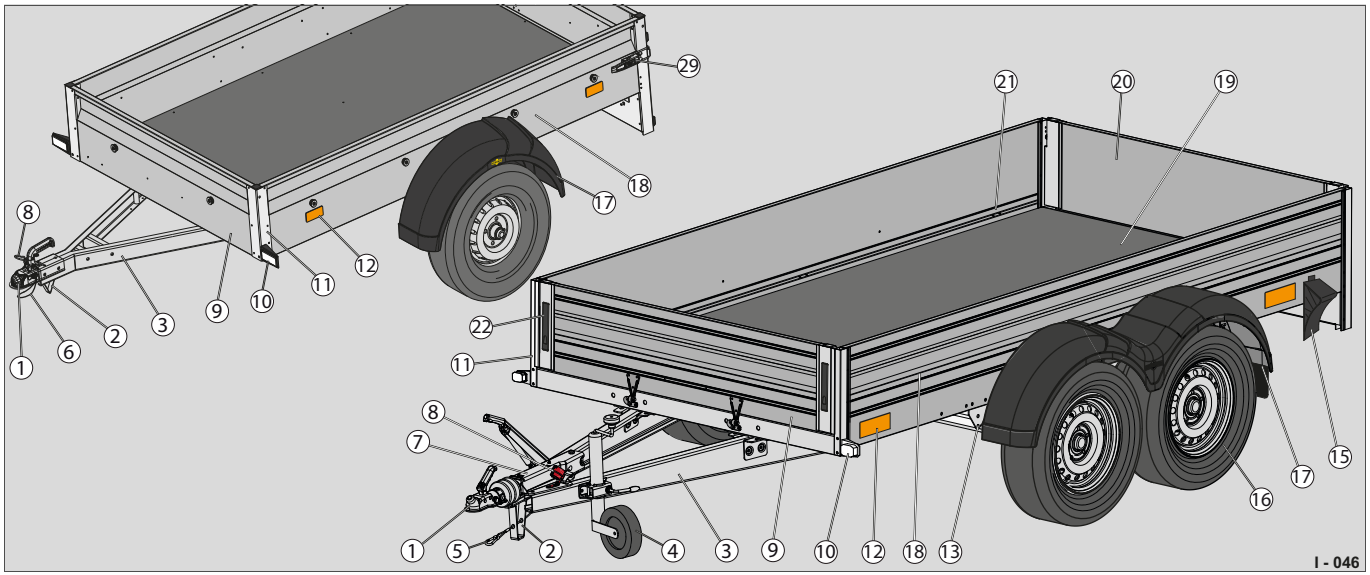


Fig. 1 Example: Front view (unbraked / braked)

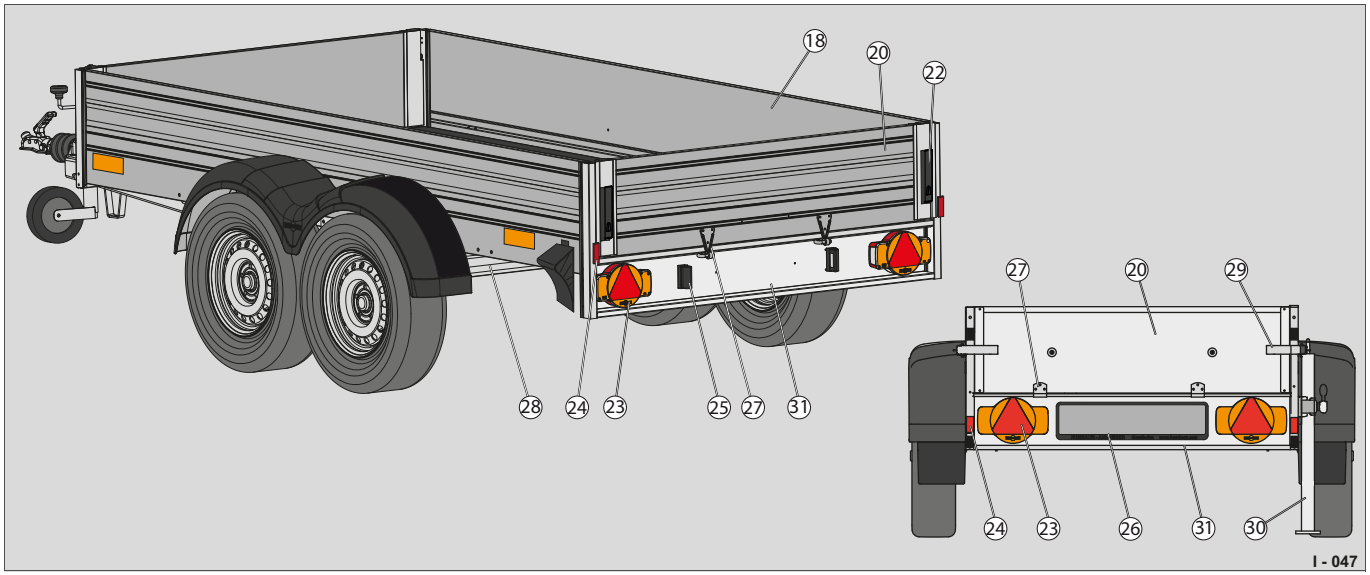


Fig. 2 Example: Rear view

Here you will find the basic components for a car trailer up to 3.5 to.

1 Ball coupling
2 Support bracket
3 V drawbar / drawbar frame
4 Jockey wheel
5 Safety cable (for braked)
6 Arrester cable (for braked)
7 Overrun device with hand brake lever, brake linkage, etc.
8 Electric plug / parking socket
9 Front drop side
10 Front retro-reflector / white reflector or side light
11 Stanchion
12 Side retro-reflector / orange reflector
13 Wheel shock absorbers
15 Wheel chock
16 Wheel (tyre)
17 Mud guards (with splashguard if applicable)
18 Drop side, side
19 Cargo bed
20 Rear drop side
21 Lashing point (tie-down bracket, tie-down ring)
22 Drop side lock (recessed)
23 Rear multifunctional light
24 Rear reflector / red reflector
25 Number plate light
26 Registration number holder
27 Hinge
28 Axle / brakes / chassis
29 Drop side lock (surface)
30 Prop stand
31 Underride protection

Additional accessories / add-on components are described in this operating manual.

Types of trailer / type identification / compliance

In the German Road Traffic Act (StVO), the various types of trailers for cars with a ball head coupling are divided into
O1 Class (up to 750 kg) and
O2 Class (above 750 kg up to 3500 kg)
.

The trailers have a type identification and their licensed fittings may not be changed!

Changes to the trailer, e.g. using an axle made by a different company, a different overrun device / brakes, wheels or tyres which are not registered, will lead to loss of approval!

Special trailers and trailers with special equipment can be tested and licensed individually by notified testing authorities (e.g.: TÜV, SGS).

Confirmation of compliance

CE

Humbaur GmbH hereby attests to the company's compliance with all relevant EU directives for the registration and safe use of car trailers up to 3.5 to.

You may request an EC declaration of conformity for vehicle bodies according to the Machinery Directive 2006/42/EC from us separately.

Fig. 3 Example: Open box (unbraked, up to 750 kg)

Fig. 4 Example: closed box (box trailer)

Fig. 5 Example: Horse / livestock trailer

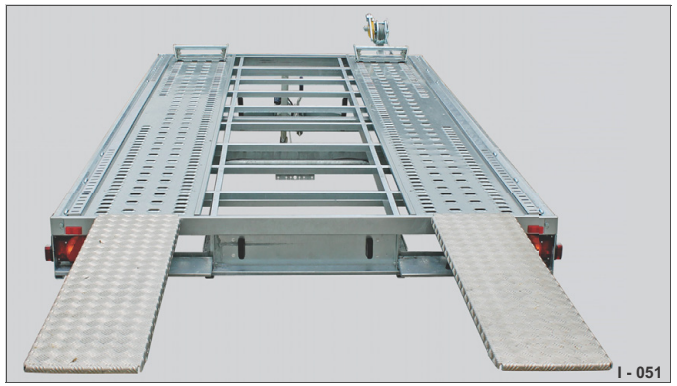


Fig. 6 Example: Vehicle transporters

Fig. 7 Example: Tipper

Fig. 8 Example: Piping trailer (HTR)

Technical data

You will find the technical data for your trailer in the following places:

– Vehicle documents:
  Registration certificate part I (ZB I) and
  Registration certificate part II (ZB II),
  EC certificate of conformity / COC - paper
– Type plate (permanently attached to the trailer)

If you lose the vehicle documents, you need to report it to the police.

You can apply to the manufacturer for a duplicate of the EC certificate of conformity (COC paper) after officially proving the loss.

The EC certificate of conformity (COC paper) is required to license a trailer.

The dimensions / weights / axle load / brake system / top speed and permitted wheel / tyre combination as well as the trailer coupling are specified in the COC paper.

When disposing of / selling your trailer, the EC certificate of conformity (COC paper) should be handed to the new owner.

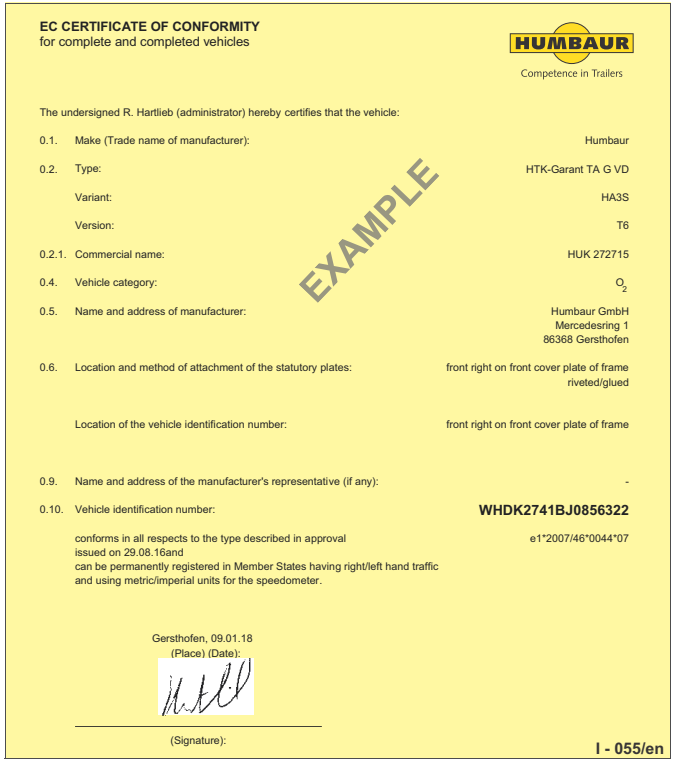
A vehicle identification number (VIN) is attached to the trailer to identify it.

The VIN of your trailer is on the type plate and is also engraved on the right in the frame / fixed side looking in the direction of travel.

If there are any questions about this trailer, it is necessary to quote the VIN!

– The type plate provides information about the type of trailer and its origin as well as the max. permitted loads / weights.
– Additional signs can be attached depending on the country (e.g. for France)

EC-Certification of Conformity (COC)



EC CERTIFICATE OF CONFORMITY
for complete and completed vehicles

HUMBAUR
Competence in Trailers

The undersigned R. Hartlieb (administrator) hereby certifies that the vehicle:

0.1.	Make (Trade name of manufacturer):	Humbaur
0.2.	Type:	HTK-Garant TA G VD
	Variant:	HA3S
	Version:	T6
0.2.1.	Commercial name:	HUK 272715
0.4.	Vehicle category:	O_2
0.5.	Name and address of manufacturer:	Humbaur GmbH Mercedesring 1 86368 Gersthofen
0.6.	Location and method of attachment of the statutory plates:	front right on front cover plate of frame riveted/glued
	Location of the vehicle identification number:	front right on front cover plate of frame
0.9.	Name and address of the manufacturer's representative (if any):	-
0.10.	Vehicle identification number:	**WHDK2741BJ0856322**
	conforms in all respects to the type described in approval issued on 29.08.16and can be permanently registered in Member States having right/left hand traffic and using metric/imperial units for the speedometer.	e1*2007/46*0044*07

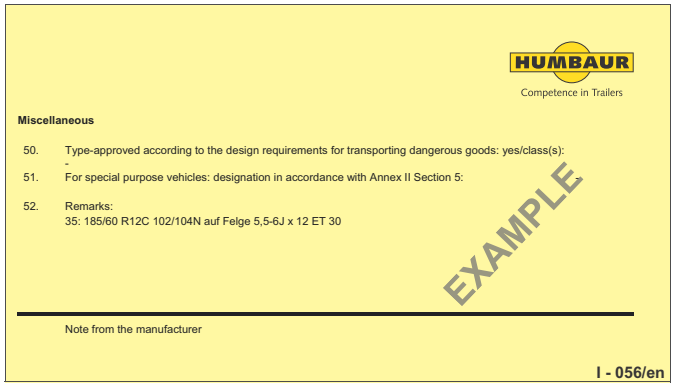
EXAMPLE

Gersthofen, 09.01.18
(Place) (Date):

(Signature):

I - 055/en

Fig. 9 Front (page 1)



HUMBAUR
Competence in Trailers

Miscellaneous

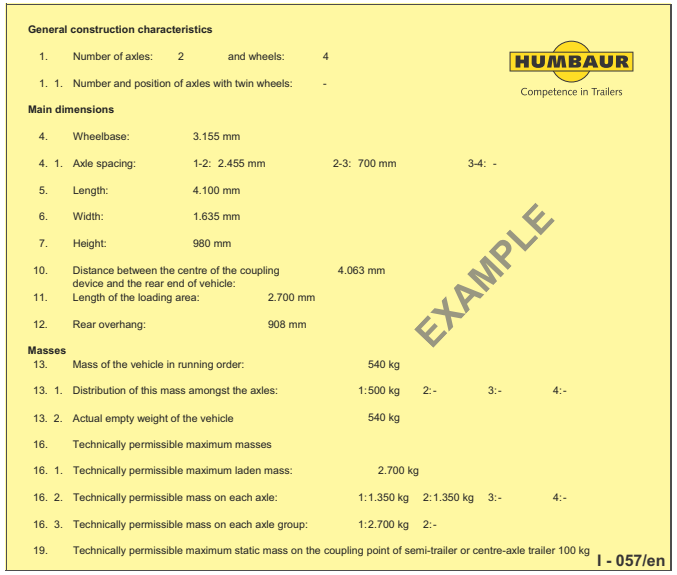
50. Type-approved according to the design requirements for transporting dangerous goods: yes/class(s):
-
51. For special purpose vehicles: designation in accordance with Annex II Section 5:
52. Remarks:
35: 185/60 R12C 102/104N auf Felge 5,5-6J x 12 ET 30

EXAMPLE

Note from the manufacturer

I - 056/en

Fig. 10 Back (page 4)



General construction characteristics

1. Number of axles: 2 and wheels: 4
1. 1. Number and position of axles with twin wheels: -

HUMBAUR
Competence in Trailers

Main dimensions

4. Wheelbase: 3.155 mm
4. 1. Axle spacing: 1-2: 2.455 mm 2-3: 700 mm 3-4: -
5. Length: 4.100 mm
6. Width: 1.635 mm
7. Height: 980 mm
10. Distance between the centre of the coupling device and the rear end of vehicle: 4.063 mm
11. Length of the loading area: 2.700 mm
12. Rear overhang: 908 mm

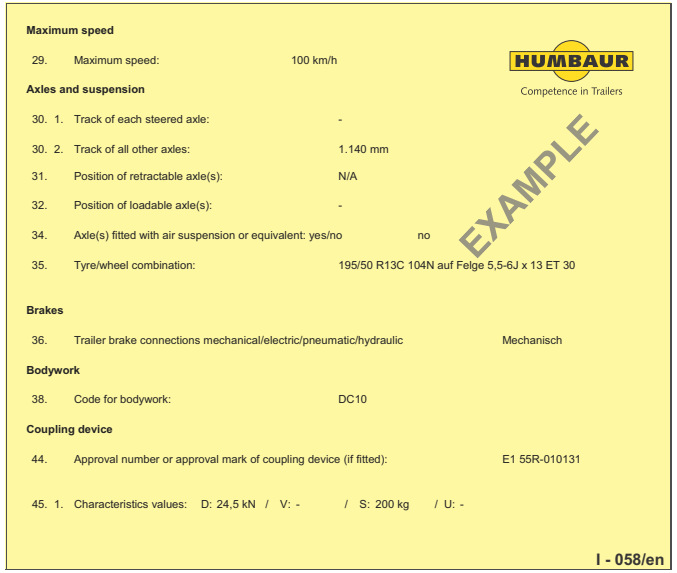
EXAMPLE

Masses

13. Mass of the vehicle in running order: 540 kg
13. 1. Distribution of this mass amongst the axles: 1:500 kg 2:- 3:- 4:-
13. 2. Actual empty weight of the vehicle 540 kg
16. Technically permissible maximum masses
16. 1. Technically permissible maximum laden mass: 2.700 kg
16. 2. Technically permissible mass on each axle: 1:1.350 kg 2:1.350 kg 3:- 4:-
16. 3. Technically permissible mass on each axle group: 1:2.700 kg 2:-
19. Technically permissible maximum static mass on the coupling point of semi-trailer or centre-axle trailer 100 kg

I - 057/en

Fig. 11 Inside cover (page 2)



Maximum speed

29. Maximum speed: 100 km/h

HUMBAUR
Competence in Trailers

Axles and suspension

30. 1. Track of each steered axle: -
30. 2. Track of all other axles: 1.140 mm
31. Position of retractable axle(s): N/A
32. Position of loadable axle(s): -
34. Axle(s) fitted with air suspension or equivalent: yes/no no
35. Tyre/wheel combination: 195/50 R13C 104N auf Felge 5,5-6J x 13 ET 30

EXAMPLE

Brakes

36. Trailer brake connections mechanical/electric/pneumatic/hydraulic Mechanisch

Bodywork

38. Code for bodywork: DC10

Coupling device

44. Approval number or approval mark of coupling device (if fitted): E1 55R-010131
45. 1. Characteristics values: D: 24,5 kN / V: - / S: 200 kg / U: -

I - 058/en

Fig. 12 Inside cover (page 3)

Explanation of COC document

Page 1

- 01 Make, 02 Type of trailer, 0.2.1 Model
- 04 Vehicle class
- 05 Manufacturer
- 06 Information on location of type plate / VIN on trailer
- 0.10 VIN, type approval number

Page 2

- Axles, wheels, wheel / axle spacing
- Main dimensions length, width, height
- Weights / masses:
  13: Gross weight unloaded (tare weight)
  13.1 Load distribution: Drawbar load (1), Axle load (2)
  13.2 Actual mass (with accessories installed)
  16: Permitted gross weight (technical)
  16.1 Fully laden
  16.2 Weight distribution per axle
  16.3 Weight distribution per axle group
  19 Max. permitted drawbar load (S) at coupling point

Page 3

- 29 Top speed (80 or resp.100 km/h)
- Axles and wheel suspension:
  35 Wheel / tyre combination (installed)
- 36 Braking system (e.g. mechanical)
- 38 Code of body (e.g. open box, closed box, etc.)
- 44 Trailer coupling (registration number)
  45. 1 Parameters D / S (drawbar load max.)

Page 4

- Various additional information
- 52 Comment: on 35 wheel / tyre combination
  (other possible wheel / tyre combinations)

Main dimensions

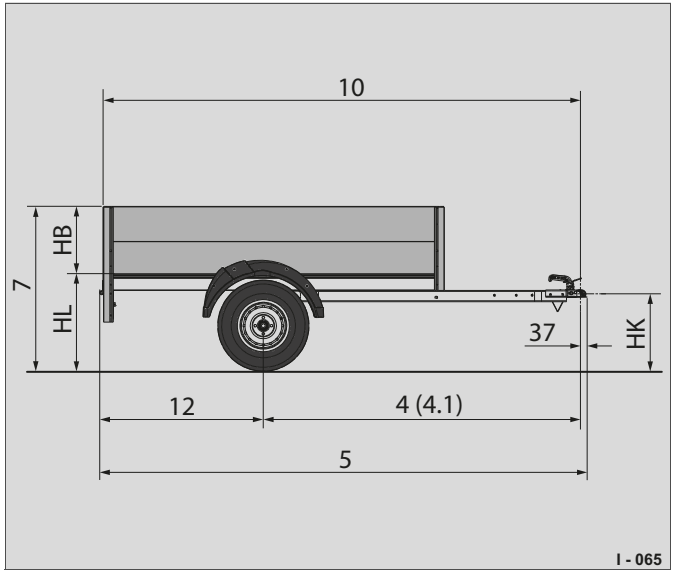


Fig. 13 Example: Side view

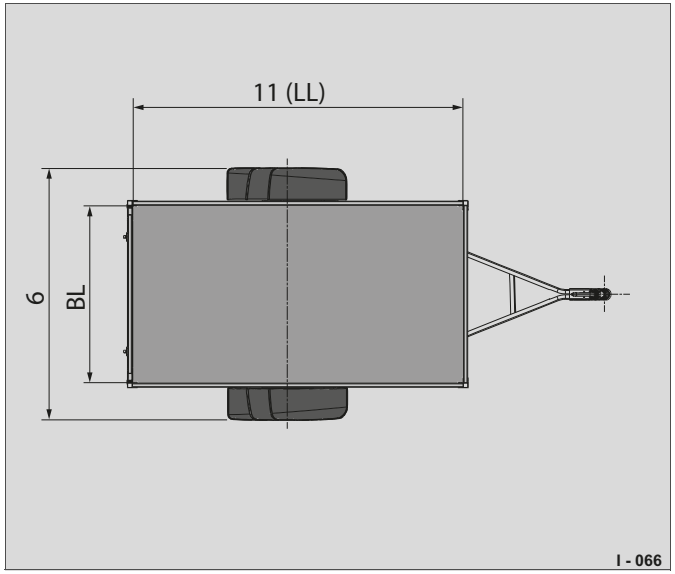


Fig. 14 Example: Top view

Explanation of information

The main dimensions can be found on the COC paper on page 2 under the heading “Main dimensions”:

- 4 (wheel base: middle coupling - middle 1st axle)
- 4.1 (spacing between the axles)
- 5 (total length)
- 6 (total width)
- 7 (overall height - unladen)
- 10 (distance: middle coupling - rear external surface)
- 11 (length of cargo bed (LL) - internal)
- 12 (overhang at rear from middle of rear axle)

- BL (width of cargo bed -internal)
- HL (load height from the ground)
- HB (height of drop side)
- HK (middle of coupling from the floor)
- LL (length of cargo bed (11) -internal)

Cargo bed:
LL x BL = ...m²

Cargo volume:
Cargo bed x HB = ... m³ (litres)

Load capacity:
Permitted gross weight (16) - empty weight (13) = ... kg

Example calculation for model HA132513:

Cargo bed: 2.510 m x 1.310 m = 3.288 m²
Cargo volume: 3.288 m² x 0.350 m = 1.1508 m³
Load capacity: 1300 kg - 242 kg = 1058 kg

Type plate

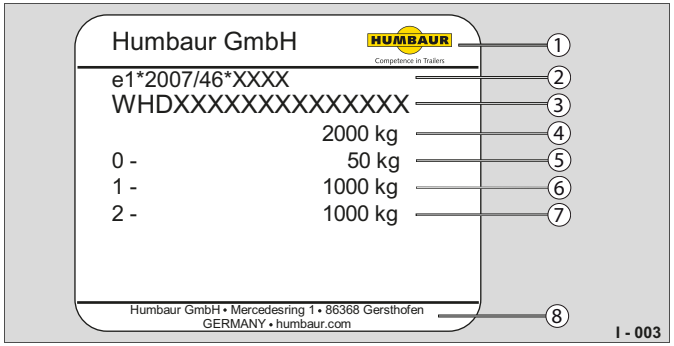


Fig. 15 Example: Type plate, glued on

Fig. 16 Example: Metal plate, bolted on

1 Manufacturer logo
2 Number EEC operating license (type approval number)
3 17-digit VIN
4 Max. permitted total mass / total weight
5 Drawbar load max.
6 Max. permitted weight: Axle 1
7 Max. permitted weight: Axle 2
8 Manufacturer's address

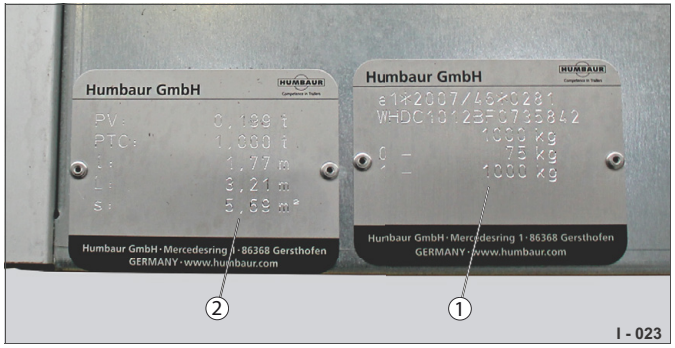


Fig. 17 Example: 2 type plates (France)

1 Manufacturer type plate
2 Type plate with additional technical information

Fig. 18 Example: Type plate (Switzerland)

1 Type approval number for e.g. Switzerland
2 VIN

The existence of the engraved VIN and the type plate should be checked when accepting the trailer!

Check and make sure that the VIN matches that in the vehicle papers.

VIN

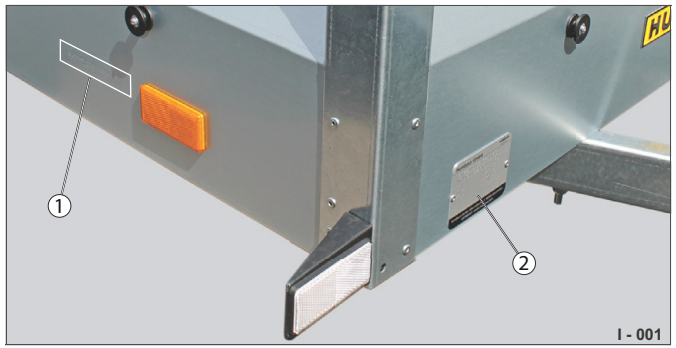


Fig. 19 Example: STEELY

1 VIN, engraved
2 Type plate (steel plate)

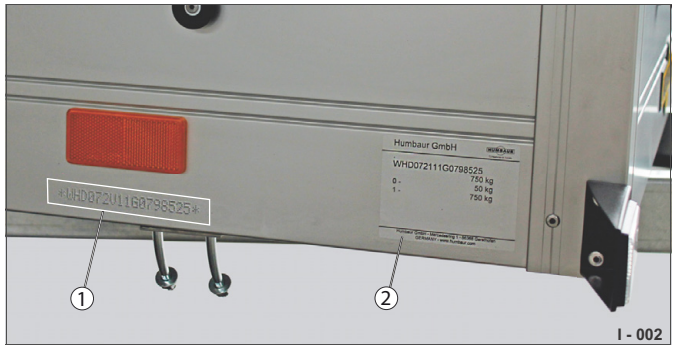


Fig. 20 Example: STARTRAILER

1 VIN, engraved
2 Type plate (sticker)

The engraved VIN will weather over time. The VIN must remain legible over the entire service life of the trailer. The type plate / VIN may not be removed or hidden by paint or a sticky label.

Component identification

Overrun device

Fig. 21 Example: Sticker overrun device

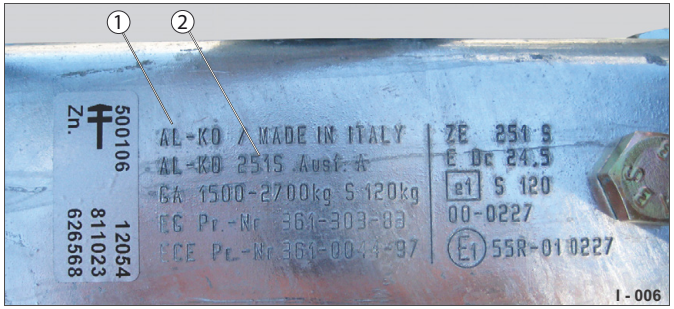


Fig. 22 Example: Engraving of drawbar

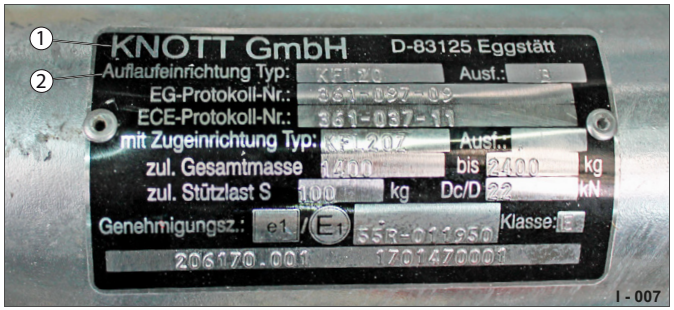


Fig. 23 Example: Metal plate overrun device

Axle

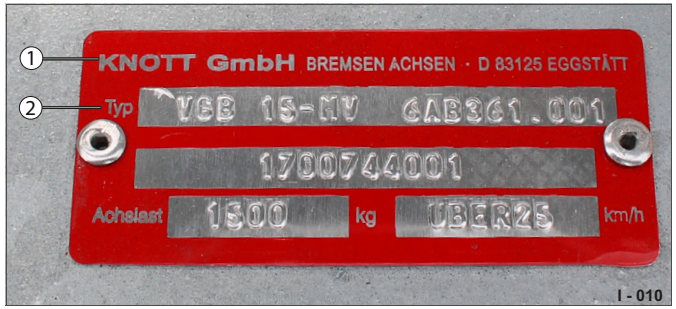


Fig. 24 Example: Type plate Knott axle, unbraked

Fig. 25 Example: Type plate AL-KO axle, braked

Ball head coupling

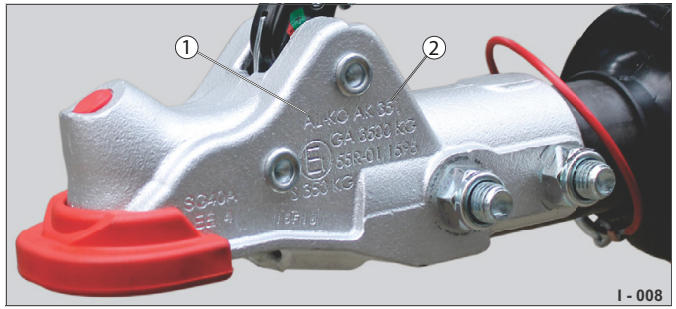


Fig. 26 Example: Engraving AL-KO ball hitch

Drawbar

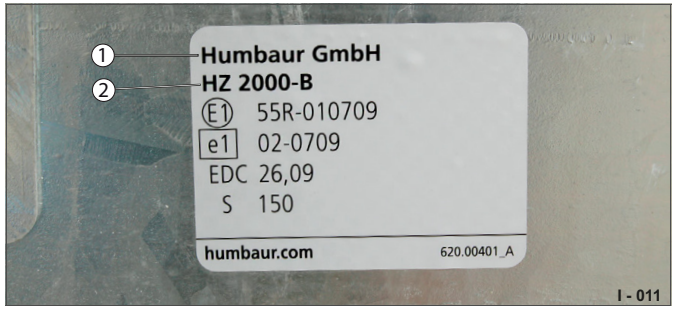


Fig. 27 Example: Lashing rail

Accessories

Fig. 28 Example: Cable winch

1 Manufacturer (make)
2 Type

The components installed have their win manufacturer plate with registration data.
The identification of components must remain legible over the entire service life of the trailer!
The identification may not be removed or hidden by paint or a sticky label!

Adapter

Fig. 29 7 to 13 pin or 13 to 7 pin

Spare wheel / spare wheel holder

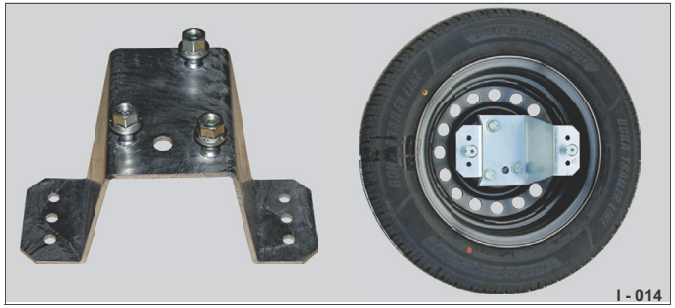


Fig. 32 Spare wheel holder with / without spare wheel

Coupling protection

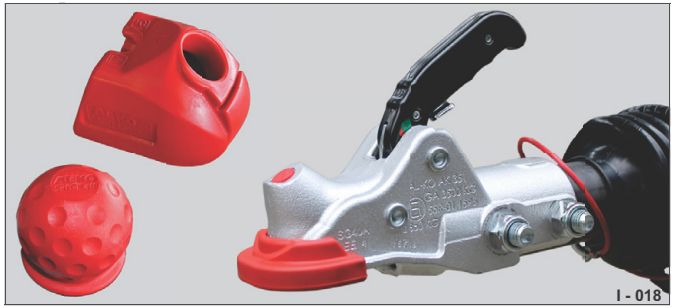


Fig. 35 Soft dock / impact protection

Protective cover

Fig. 30 Cover on the coupling / overrun device

Toolbox

Fig. 33 on the drawbar / on side of chassis

Support on drawbar

Fig. 36 Support wheel / automatic support wheel

Wheel shock absorber (RSD) for 100 km / h

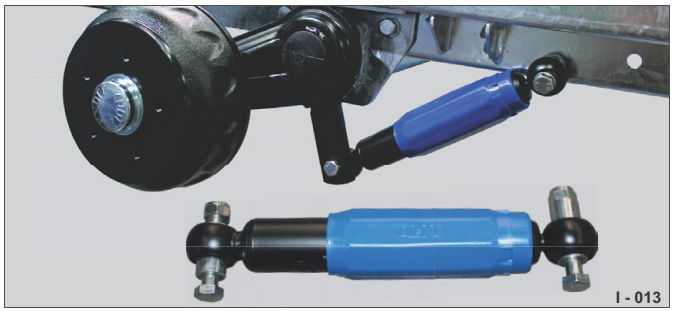


Fig. 31 RSD loose or installed in factory

Anti-snaking coupling (ASK)

Fig. 34 Example: AL-KO / Winterhoff

Support on chassis

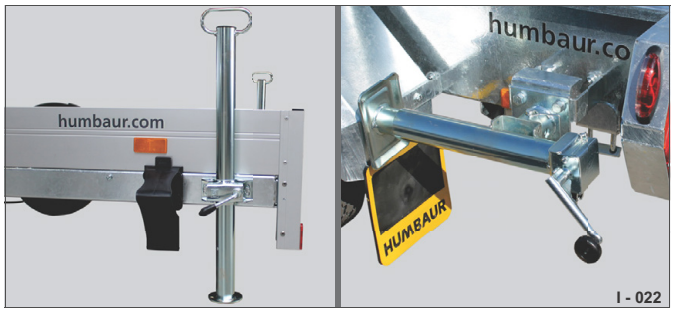


Fig. 37 Prop stand / Telescopic crank support

Wheel chocks

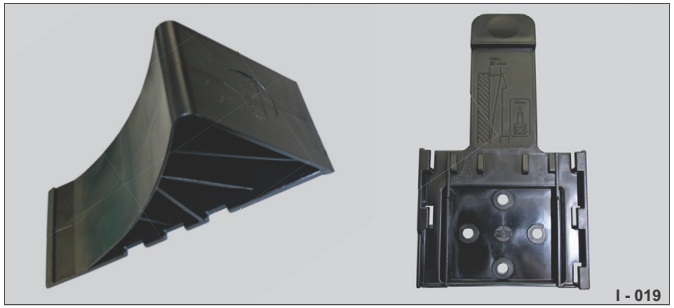


Fig. 38 Wheel chocks with retainers

Anti-theft device

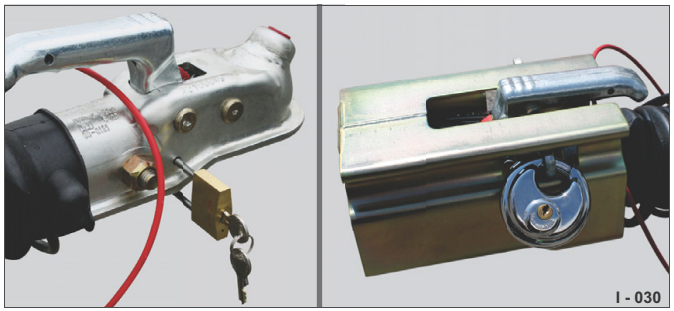


Fig. 39 Shackle lock / metal locking shoe

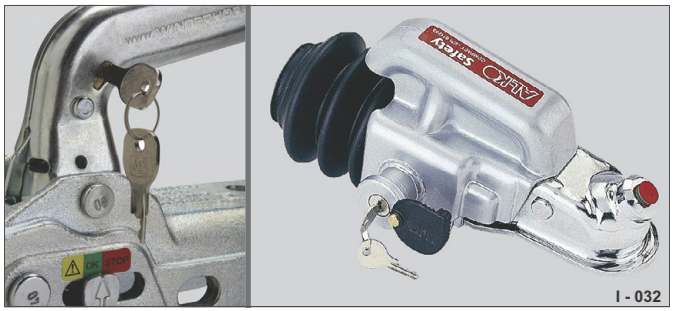


Fig. 40 Plug lock / safety compact lock

Lashing material

Fig. 41 Lashing belt set / car lashing set

Lashing points

Fig. 42 Tie-down / lashing ring

Fig. 43 Tie-down brackets, retractable

Hydraulic system / cable winch

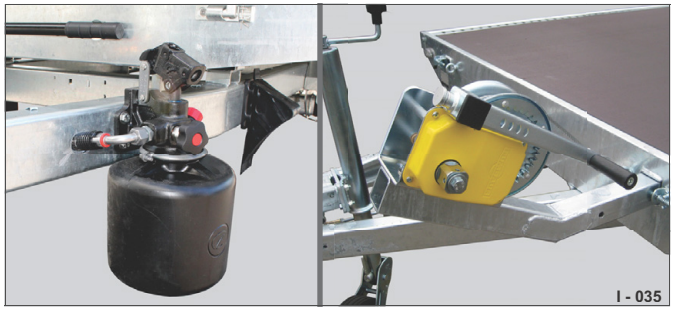


Fig. 44 Hydraulic system manual, electric / cable winch

Loading ramps

Fig. 45 Grid ramp wall

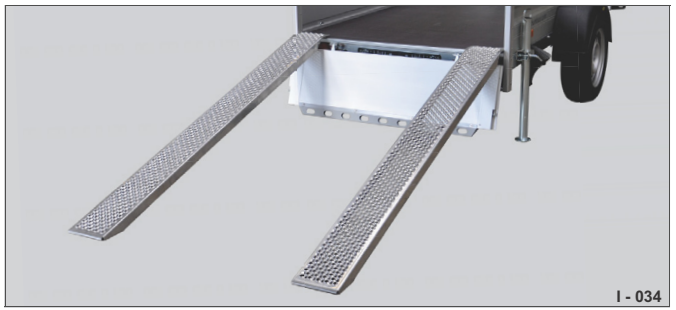


Fig. 46 Drive-up ramp / rails

Bodies / covers

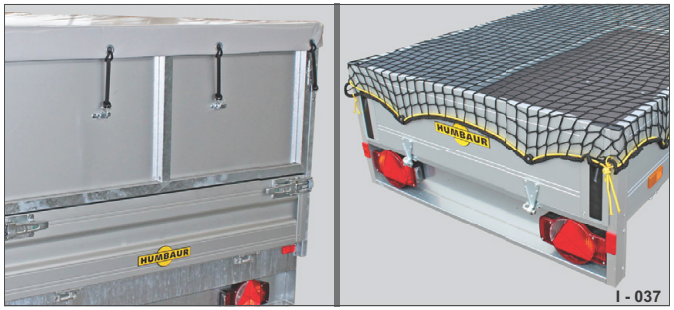


Fig. 47 Flat cover on bodies / cover net

Fig. 48 Flat cover / tarpaulin cover with roofbow

Fig. 49 Steel mesh wash / H-frame

Fig. 50 Rail 4-sides / 2- sides

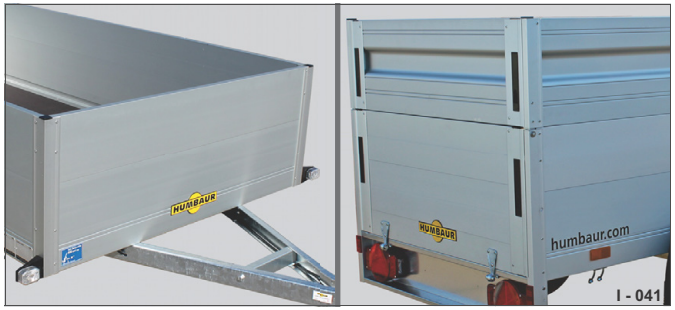


Fig. 51 Drop side 500 mm / side extension 350 mm

Fig. 52 Side extension 350 mm

Fig. 53 Bicycle carrier / wood/aluminium cover with rail

Fig. 54 Steel mesh extension

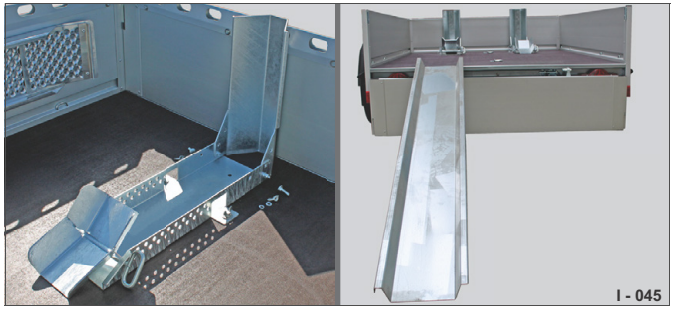


Fig. 55 Motorcycle stand / motorcycle loading ramp

3 Operation

Commissioning the trailer

Requirements:

To avoid accidents and prevent personal injury and material damage, it is important to Check the condition and functionality of the trailer before setting off.

If the holder commissions and licences a trailer with defects, then they will be prosecuted in Germany with fines and points on their licence according to the German Road Traffic Act (StVO).

Make sure that the trailer is fit to drive on public roads!

Commission on solid, stable and level ground. Do no obstruct the traffic on the roads. Do not impede road users / people and do not expose them to risks.

Observe the maximum permissible towing load and drawbar load of your towing vehicle and the trailer coupling.

– Check the weight of the goods to be loaded where required.
– Carry out a departure check - see page 33.

Prerequisites for safe driving with a trailer:

– The body must be fully closed while driving.
– Transport goods must be properly tied down/secured.
– The permissible gross weight and the axle loads must be complied with.
– Comply with the load securing guidelines pursuant to VDI 2700.

DANGER

Driving with a faulty / not roadworthy trailer

A trailer with defects or which is directly increases the risk of an accident!

The trailer could come unhitched or the load could be lost, brakes could fail, tyres could burst, etc. - risk of personal injury, material damage, accidents!

► Before setting off, make sure that the trailer has a valid licence and has no defects.

► Have any defects on the trailer immediately repaired in a specialist workshop.

General procedure

Fig. 1 Commissioning the trailer

The following steps need to be taken:

► Positioning towing vehicle in front of the trailer. Trailer should be flush with the towing vehicle where possible.
► Secure towing vehicle against rolling away - apply hand brake.
► Release hand brake on the trailer (if present).
► Guide trailer towards the car coupling.
► Hitch up trailer and attach safety cable / arrester cable.
► Plug electric systems into socket on car.
► Raise jockey wheel / supports (if present).
► Remove wheel chocks and secure in brackets.
► Carry out departure check.

Departure check

Components	Testing	Completed
Ball coupling	has engaged properly and is secured? Safety / wear indicator is in the green zone?	✔
Safety cable / arrester cable	has been securely attached / hooked in to the retainer on the car coupling?	✔
Parking brake (if present)	is released?	✔
Plug connection	is firmly connected and secured?	✔
Jockey wheel (if present)	has been cranked up correctly and secured?	✔
Supports	have been raised and secured; crank handle has been removed and stowed away safely?	✔
Wheel chocks	have been removed and stowed away safely?	✔
Load	weight is evenly / correctly distributed and secured against sliding around / tied down?	✔
Tyres	are filled to the correct tyre pressure; do not show any damage and have sufficient profile?	✔
Lights, side lights	are working / undamaged?	✔
Anti-theft device	has been removed and stowed away safely?	✔
Tarpaulin, cover net	has been tensioned correctly or locked?	✔
Drop sides, flaps, doors, covers	have been locked and secured?	✔
Loading ramps, drive-up ramps	are firmly attached, stowed and secured?	✔
Spare wheel	is attached and secured?	✔
Operating lever (hand pump, cable winch, supports)	is stowed away and secured?	✔
Cable winch frame	has been properly inserted and secured?	✔
Toolbox	is locked?	✔

Tab. 1 Carry out departure check

Trailer coupling on car / height of ball head coupling on trailer

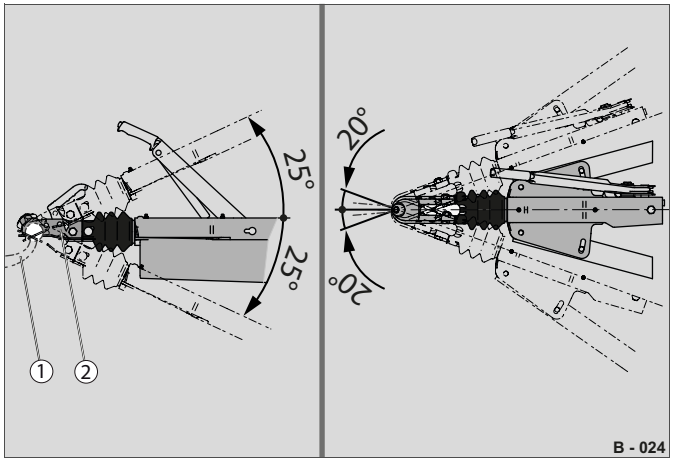


Fig. 2 Maximum swivel range of ball head coupling

1 Trailer coupling (ball head) on towing vehicle
2 Ball head coupling (trailer)

Only to be used with ball head coupling according to Directive 94/20/EC or ECE R55 with a 50 mm Ø ball head.

WARNING

Limited swivel range!

Short / incorrect car couplings can limit the necessary swivel range - trailer could come uncoupled.

► Use a trailer coupling with a free standing ball head.

► Before setting off, check that your car coupling allows the necessary swivel movement horizontally and vertically.

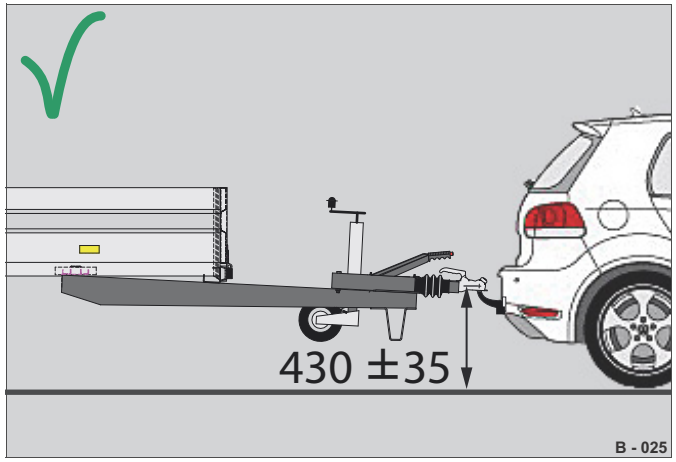


Fig. 3 The height of the ball head

Height min. 395 mm / max. 465 mm

Ball head couplings for trailers are built to DIN 74058 or ISO 1103 with a height of 430 ± 35 mm.

By raising the coupling (Fig. 4 /1), the height of the ball head coupling can be matched to the height of your car trailer coupling through underlining.

► Before connecting up your trailer for the first time, make sure that the car trailer coupling has been aligned with the ball head coupling:

- Height of both couplings
- Design of the car trailer coupling
- Electrical connection (plug: 7 or 13-pin)

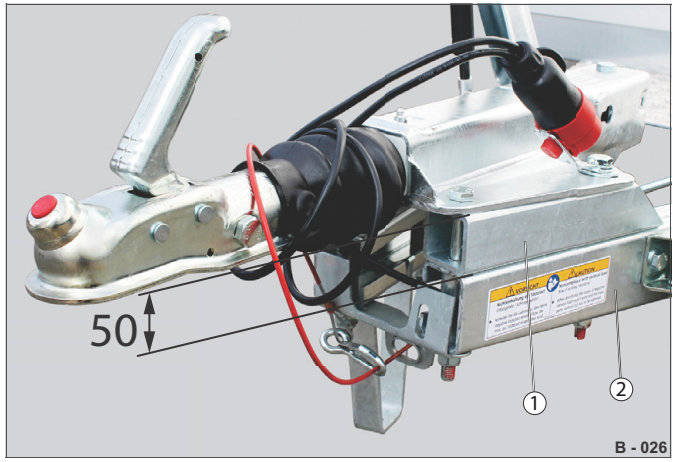


Fig. 4 Coupling height increase

1 Coupling height increase 50 mm
2 V shaped draw bar

WARNING

Trailer at an angle!

The required swivel range is limited / increased coupling wear / road handling is impaired- trailer could come uncoupled.

► Before connecting up your trailer for the first time, check that the height of the ball head on the car is in the range of 395 - 465 mm between the road surface and the middle of the ball head.

► Adapt the height of the ball head coupling on the car or pad out the overrun device if the height difference is too great.

► If necessary, have a different ball head coupling attached to your towing vehicle in a specialist workshop.

► Do not drive with a trailer which is at an extreme angle to the car (or tilted forwards or backwards).

Ball couplings

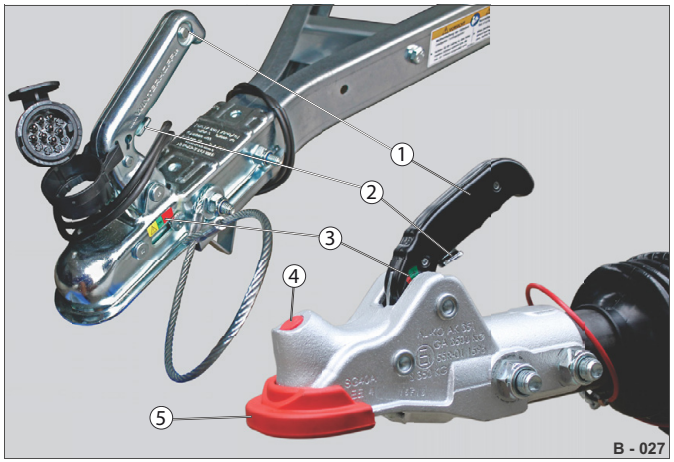


Fig. 5 Example: Ball couplings

1 Handle
2 Safety catch
3 Wear indicator
4 Safety display
5 Softdock (rubber protection from impact)

There are different ball head couplings from different manufacturers. In principle, they are constructed in the same way and fulfil the same functions for trailer operation.

The ball head coupling on a car trailer coupling as well as the ball head coupling on the trailer are subject to wear and tear during operation. This depends on the driving style as well as adhering to regular maintenance of the ball head and the trailer coupling. The various signs of wear (Fig. 5 /3) on the ball head coupling or additional safety displays (Fig. 5 /4) are there for your safety. These display the status and wear of the ball head and the coupling cup / spherical cup.

Wear check

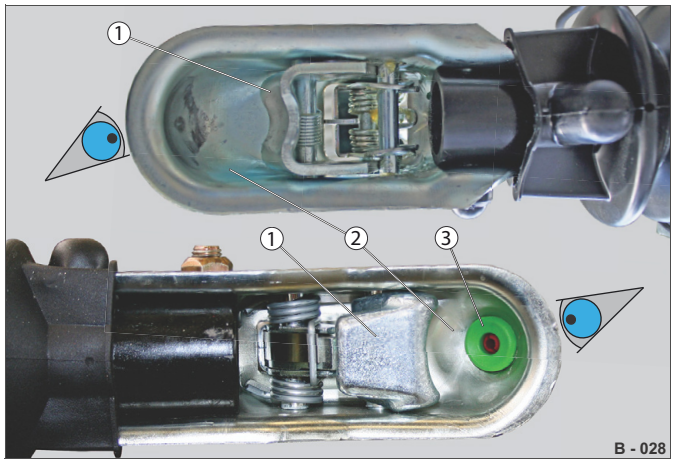


Fig. 6 Example: Ball coupling from below

1 Coupling cup
2 Spherical cup
3 Safety display

► Regularly inspect the state of the coupling cup (Fig. 6 / 1) and the spherical cup (Fig. 6 /2).

► Before every trip, check the state of the ball head on your car trailer coupling.
The ball head should not show any visible grooves and should not fall below a minimum diameter -
see “Ball coupling” on page 163.

⚠ WARNING

Driving with a worn ball head coupling!

The trailer could come uncoupled while driving, could start skidding and tip over - risk of an accident!

► Do not drive with a worn / dirty ball head coupling.

► Before setting off, make sure that the ball head coupling has clicked into place and the safety display is in the green / positive area.

► A ball head with a diameter of less than 49 mm needs to be replaced.

Signs of wear

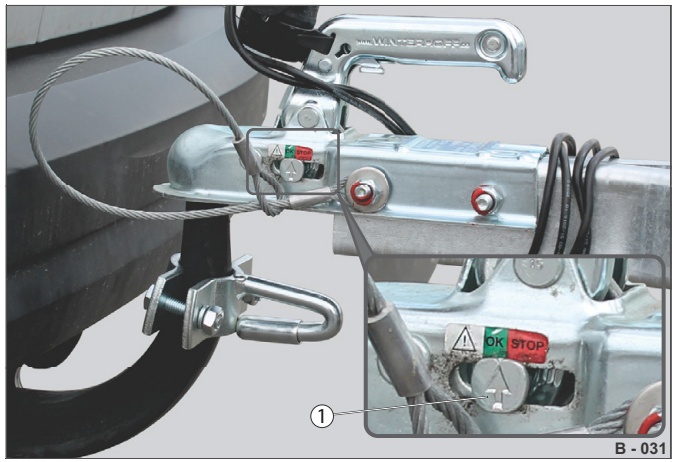


Fig. 7 Example: Optical display on the ball head coupling

1 Wear / safety indicator

► After uncoupling the ball head coupling, check the optical wear / safety display (Fig. 7 /1).

The optical display needs to be in the green / positive OK area **(+)**.

– Ball head is in new condition.
– Wear of the ball head is in the permitted range.

► Correct the coupling if the red STOP marker or **(X)** is displayed.

– The ball head coupling of the trailer has not been properly coupled.

► Carry out maintenance work if the warning sign **(-)** is displayed.

– Ball head on the car trailer coupling is at the bottom wear limit (Ø 49 mm).
– The ball head coupling of the trailer is damaged.

Coupling process

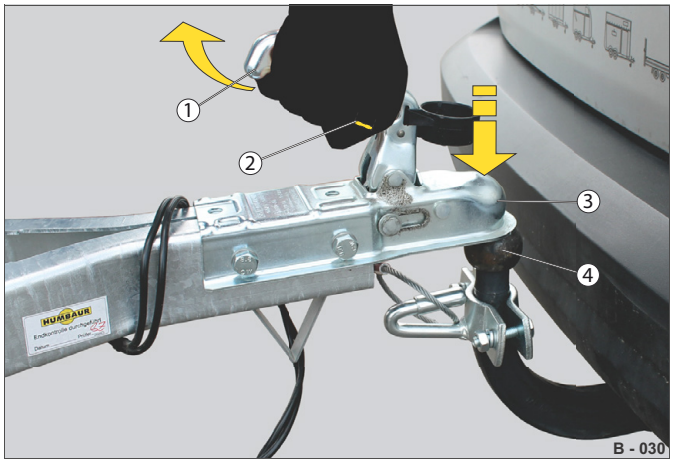


Fig. 8 Example: couple unbraked trailer

1 Handle
2 Safety catch
3 Spherical cup
4 Ball head

Coupling with safety catch

► Press the safety catch (Fig. 8 /2) all the way in.

► Pull the handle up (Fig. 8 /1) completely and release the safety catch.

► Place the spherical cup (Fig. 8 /3) on the ball head (Fig. 8 /4).

If there is sufficient drawbar load, then the ball head coupling will click into place by itself.

If there is little drawbar load (e.g.: tandem trailer):

► Press the ball head coupling down manually until it clicks into place.

► Check that the ball head coupling is sitting firmly on the ball head.

The safety catch must lock the handle into place.

► To be safe, try to lift it off without pushing the safety catch.

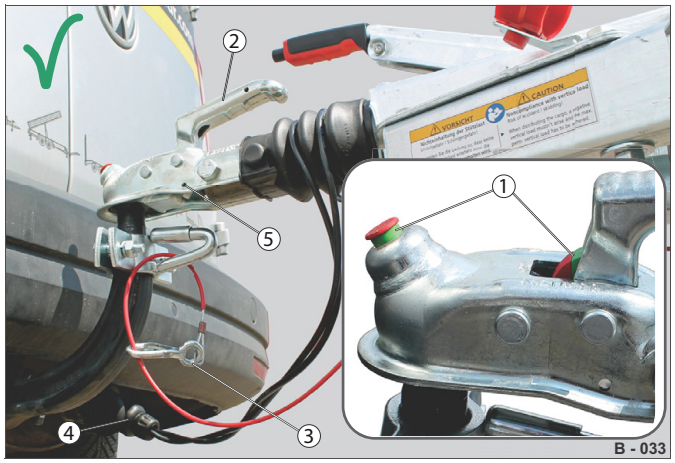


Fig. 9 Example: coupled braked trailer

1 Wear / safety indicator
2 Handle, secured
3 Safety cable, attached
4 Electric plug, plugged in
5 Barrier

Coupling without safety catch

► Pull the handle (Fig. 9 /2) all the way up.

The ball head coupling is open.

► Place the spherical cup (Fig. 8 /3) on the ball head (Fig. 8 /4).

If there is sufficient drawbar load, then the ball head coupling will click into place by itself.

If there is little drawbar load (e.g.: tandem trailer):

► Press the ball head coupling down manually until it clicks into place.

The green cylinder on the safety display (Fig. 9 /1) is visible.

► To be safe, try to lift it off.

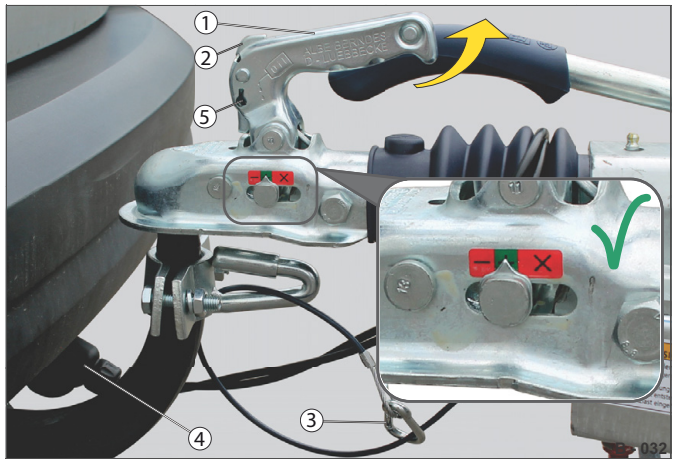


Fig. 10 Example: coupled braked trailer

1 Handle, secured
2 Safety catch, clicked in place
3 Safety cable, attached
4 Electric plug, plugged in
5 Barrier

Check

► Check the optical wear / safety display - see page 35 / Fig. 7 .

► Attempt to lift:
To check, pull the handle upwards (Fig. 10 /1) - without actuating the safety catch (Fig. 10 /2).

The ball head coupling may not lift off the ball head.

► Attach the arrester/ safety cable (Fig. 10 /3) to the device or respectively to an eye on the car's towbar. - see "Securing trailer (unbraked)" on page 71 or see "Securing trailer (braked)" on page 72.

Securing

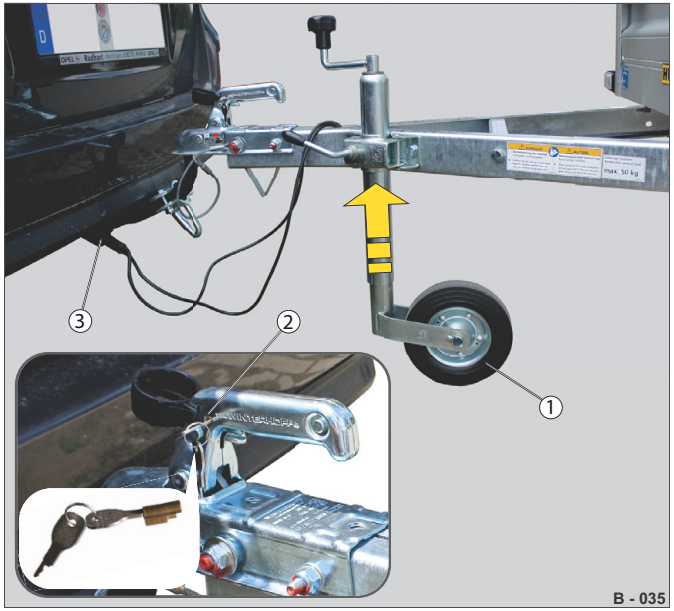


Fig. 11 Example: Lock handle

1 Jockey wheel
2 Plug lock in barrier
3 Electrical plug

► Secure the handle with a plug lock (on unbraked) or shackle lock (on braked) trailer to prevent the barrier from being opened without authorisation (Fig. 11 /2).
The handle is blocked.

► Insert the electric plug (Fig. 11 /3) into the car socket - see “Plug connections” on page 135.

► If applicable, raise the support / support wheel (Fig. 11 /1) - see “Support devices” on page 76.

Uncoupling process

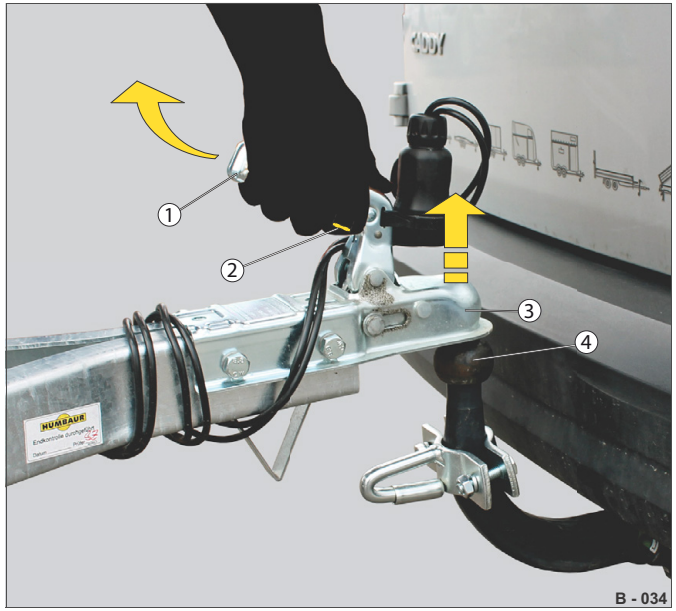


Fig. 12 Example: uncouple unbraked trailer

1 Handle, secured
2 Safety catch
3 Spherical cup
4 Ball head

Unbraked trailer

► Secure the trailer against rolling away.

► Release the arrester cable from the ball head coupling.

► Release the electric plug from the car socket.

► Unlock the handle (Fig. 12 /1) in barrier.

► If applicable, lower the support wheel / support.

► Press the safety catch (Fig. 12 /2) on the handle all the way in.

► Pull the handle all the way up.
The coupling is open.

► Lift the spherical cup (Fig. 12 /3) off the ball head (Fig. 12 /4) of the towing vehicle.

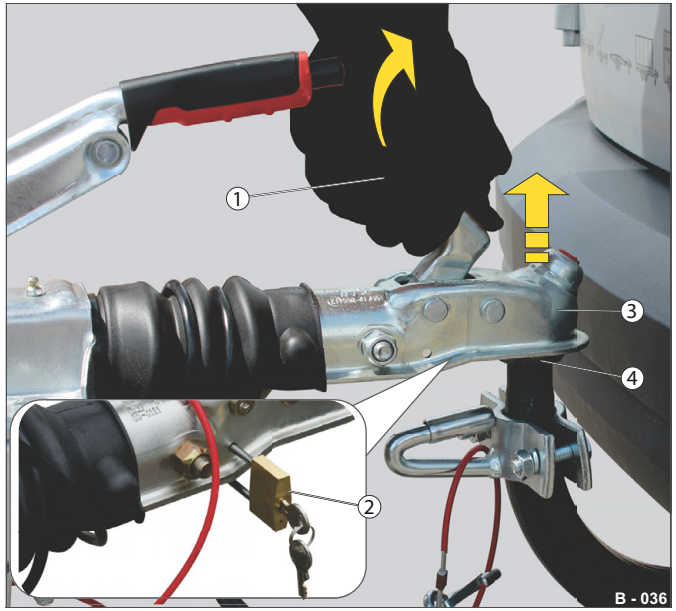


Fig. 13 Example: uncouple braked trailer

1 Handle
2 Shackle lock in barrier
3 Spherical cup
4 Ball head

Braked trailer

► Apply the parking brake.

► Release the safety cable from the ball head coupling.

► Release the electric plug from the car socket.

► Unlock the handle (Fig. 13 /1) in the barrier (Fig. 13 /2).

► Pull the handle all the way up.
The coupling is open.

► Lower the support wheel to lift the spherical cup (Fig. 13 /3) off the ball head coupling (Fig. 13 /4).

Safety coupling (anti-snake coupling)

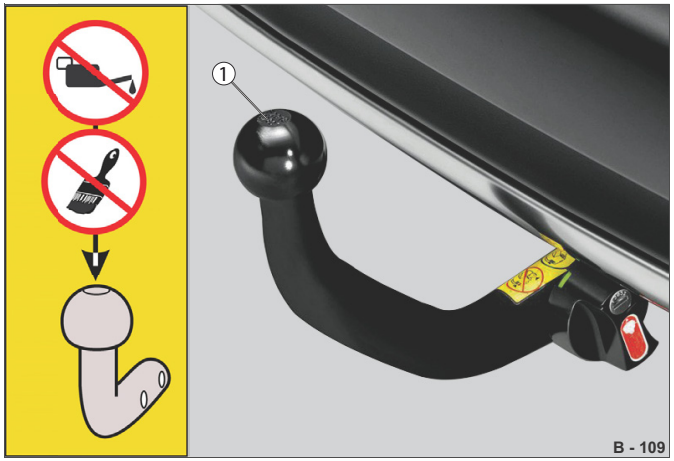


Fig. 14 Conditions for safety coupling

1 Ball head (dirt / grease free, bare metal)

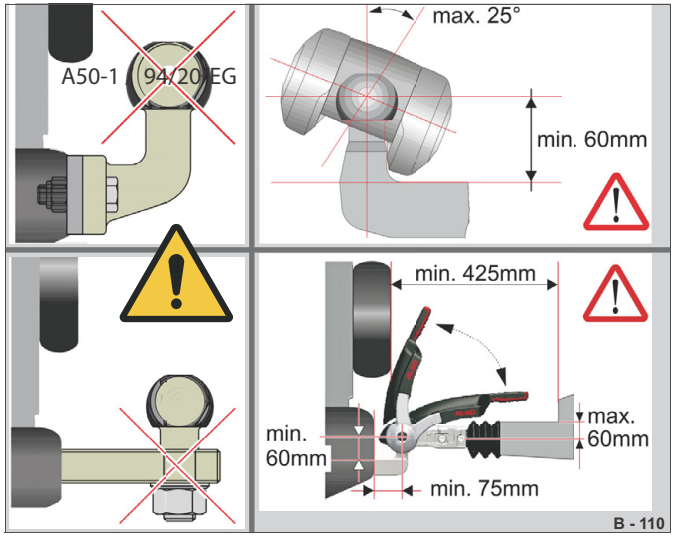


Fig. 15 Requirements / minimum dimensions

⚠ WARNING

Driving with a greased / dirty ball head!

The function of the safety coupling is not ensured. The damping action is greatly reduced - snaking / risk of accidents!

► Do not drive with a greased ball head on your car trailer coupling.

► Remove any dirt / grease / coating / rust from the ball head - use white spirit or pure petroleum.

► Before setting off, check that the ball head does not have any grooves / deformations.

► Have a worn coupling ball replaced in a specialist workshop.

– Safety couplings minimise a swerve / pitching movement (snaking) of the trailer when cornering / driving over pot holes.

– They have a damping property due to friction linings.

– Safety couplings are primarily used on horse trailers or when transporting sensitive goods.

– To use a safety coupling, the requirements of the ball head coupling on your car must be adhered to (Fig. 15)

– The swivel range is the same as for a normal ball head coupling: Vertical: ± 25° / Horizontal: ± 20°

The handle on the ball head coupling or stabilising handle as well as the hand brake lever must not be used to assist manoeuvring - risk of damaging the mechanical components!

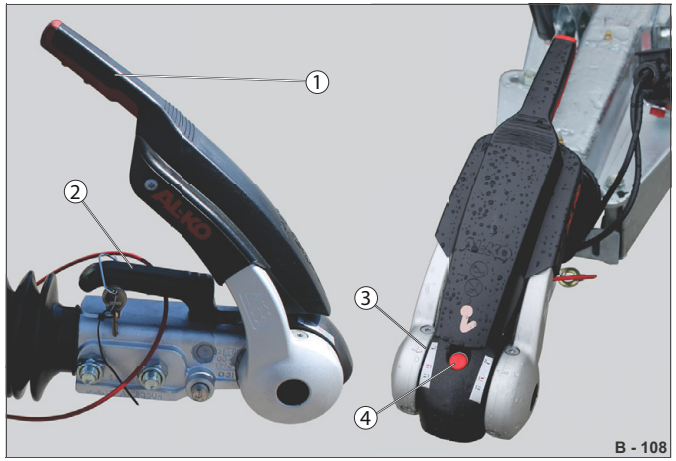


Fig. 16 Example: ALKO AKS 3004-3504

1 Stabilising handle (for friction linings)
2 Coupling lever
3 Wear indicator
4 Safety display

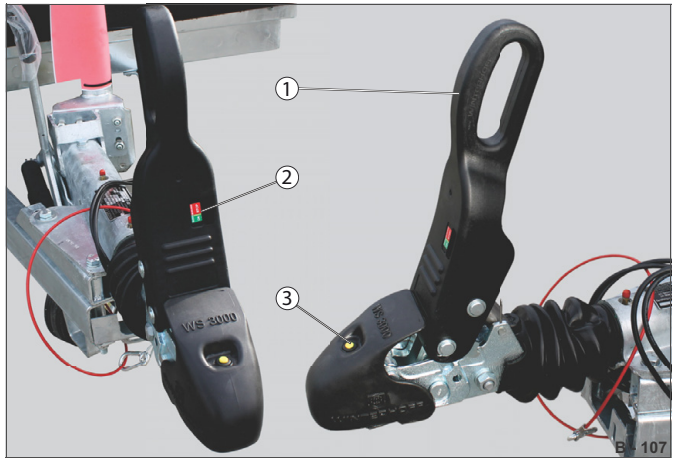


Fig. 17 Example: Winterhoff WS3000

1 Lever
2 Wear indicator
3 Check display

Operating WS3000 safety coupling

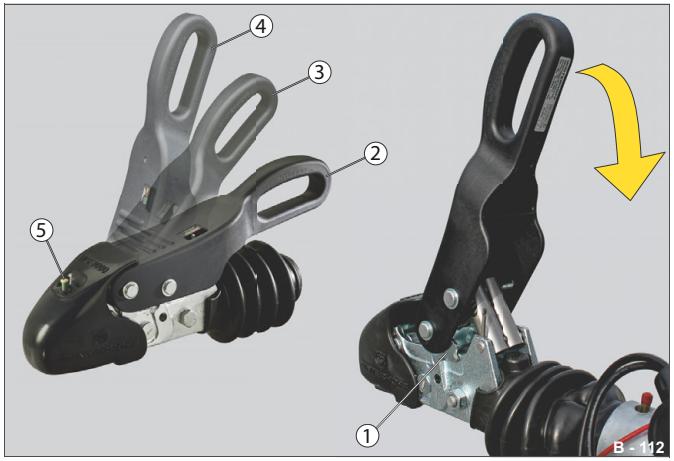


Fig. 18 Position of WS3000

1 Lashing straps
2 Closed, stabilisation switched on
3 Closed, stabilisation switched off
4 open
5 Control display (green pin)

How to operate the safety coupling can be found in the operating / maintenance instructions from the manufacturer. This can be found on the Internet at www.winterhoff.de/downloads.

Operating AKS safety coupling

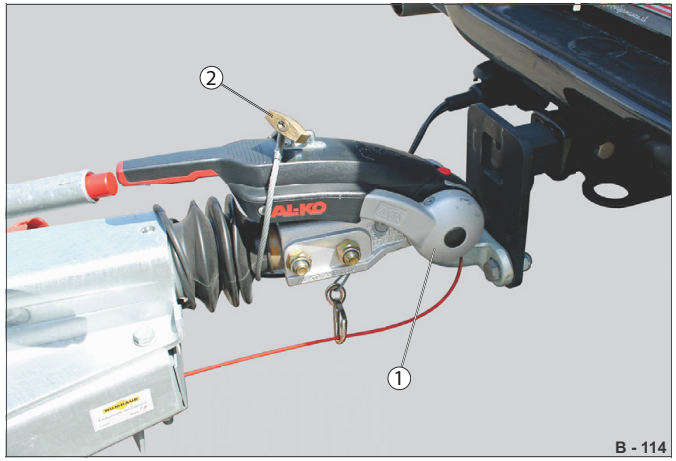


Fig. 19 Coupled positions of the AKS

1 Stabilisation handle closed
2 Anti-theft device

How to operate the safety coupling can be found in the operating / maintenance instructions from the manufacturer. This can be found on the Internet at www.alko-tech.com/en.

Changing friction linings

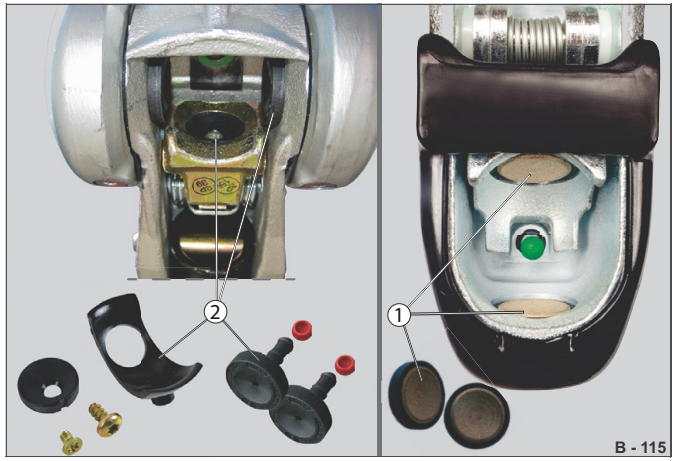


Fig. 20 Friction linings change

1 Loose friction linings (made by Winterhoff)
2 Friction linings set (made by AlKo)

How to maintain / replace friction linings can be found in the respective manufacturer's documentation.

WARNING

Driving with worn friction linings!

Increase in snaking and pitching movement - snaking / risk of accidents!

- ► Do not drive with worn friction linings.
- ► Regularly carry out the necessary maintenance work on the safety coupling.
- ► Replace friction linings which are contaminated with grease.
- ► Before setting off, make sure that the safety coupling has clicked into place and the wear display is in the positive (green) area.
- ► Have a worn /faulty safety coupling replaced in a specialist workshop.

Safety when loading / unloading

To avoid accidents and to prevent personal injury and material damage, it is important to adhere to the correct sequence when loading / unloading.

It is imperative to pay attention to the safety information!

WARNING

Loading / unloading the trailer without hitching it up or supporting it!

The trailer could suddenly tip over / snap open, suddenly start moving and crush or hit people.

- ► Couple your trailer to the towing vehicle (car) before loading / unloading.
- ► If applicable, apply the handbrake.
- ► Support your trailer with supports before loading / unloading.
- ► If applicable, put wheel chocks in place.
- ► Before loading / unloading, check that the trailer is standing securely and cannot roll away.

WARNING

Loading / unloading the trailer on a slope!

If the trailer is on a slope, the load could slip causing the trailer to start moving out of control and could crush or hit people.

- ► Where possible, load or unload the trailer on solid / horizontal ground - not on a slope.
- ► Also use wheel chocks.

Fig. 21 Trailer coupled

WARNING

Loading beyond the cargo bed / drop sides!

Trailers which are loaded beyond the cargo bed / drop sides pose an increased risk of accidents / potential danger.

The turning radius of the trailer increases when driving / cornering - risk of accidents!

- ► Comply with the statutory regulations according to Section 22 of the StVO (German Road Traffic Act) “Loads”.
- ► Do not exceed the maximum permissible values according to StVO for protruding loads to the front / rear / side.
- ► Make any load protruding beyond the drop sides / cargo bed visible.

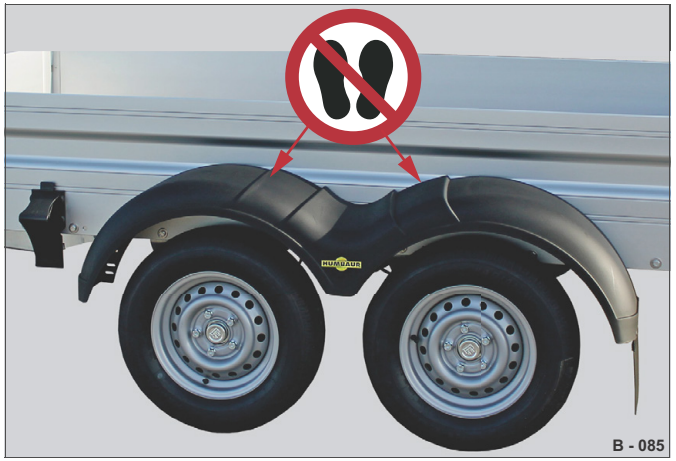


Fig. 22 Stepping on trailer / cargo bed

CAUTION

Stepping on the cargo bed!

When stepping onto / off of the cargo bed while loading / unloading, you could slip on wet / slippery or dirty cargo bed and fall off the trailer.

- ► Use  .
- ► Secure the trailer against rolling away / snapping open / tipping over.
- ► Climb very carefully onto and off of the cargo bed - do not jump up and down.
- ► Clear any snow / ice before stepping onto the cargo bed.
- ► Only tread onto and climb off of the cargo bed via the opened tail gate.
- ►  Do not climb in over closed drop sides. Do not climb on the mudguards / drawbar.

Projecting load

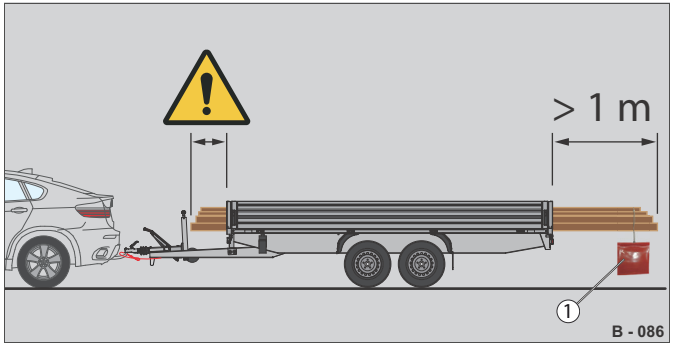


Fig. 23 Marking protruding loads to make them visible

1 Sign / flag (30 cm x 30 cm) or cylindrical body (ø 35 cm x 30 cm) in bright red

In Germany, goods that project over the cargo bed or drop sides must be marked in accordance with Section 22 of the StVO (German Road Traffic Act).

► Check that your load does not exceed the maximum permissible values according to Section 22, “Goods,” of the StVO.

► Mark any projecting goods.
- Make use of the prescribed means for doing so.

► Do not load the goods too far forward.
- The required swivel range for driving around bends must remain free!

Fig. 24 Driving with open front drop side

1 Front drop side, folded down

WARNING

Restricted swerving range – risk of collision!

Loading long loads through the front with the front drop side lowered reduces the swivel range when driving around bends – accident risk!

► Before driving off, check that the restricted swivel range will allow your towing vehicle to drive around bends.

► Adjust the distribution of the load towards the centre between the drawbar if necessary.

► If necessary, remove the front drop side.

► Avoid reversing with the front drop side lowered.

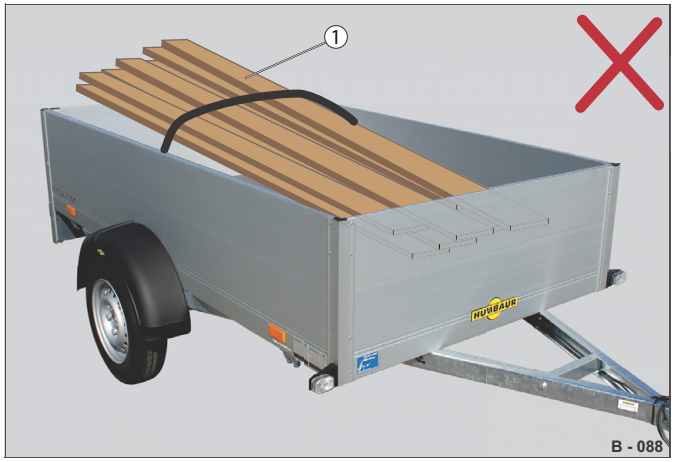


Fig. 25 Wrongly secured / loaded

1 Long load, supported on tail gate

WARNING

Loading load onto drop sides!

Direct loading pressure on the drop sides can cause them to buckle and deform or break / snap open. The load could slide around / tip over and crush or hit people - risk of accidents!

► Do not load the transport goods, e.g. Pipes, wooden planks, ladders etc. onto any of the drop sides.

► If necessary, remove the tail gate for transporting long loads which protrude beyond the drop sides.

► Use an H-frame on the front to transport long materials.

Loading/unloading bulk goods

Fig. 26 Loading trailer with bulk goods (gravel)

Fig. 27 Danger zone on a tipper

⚠ CAUTION

Loading/unloading bulk goods

The bulk goods loaded on the trailer, e.g. Sand, gravel, push against the drop sides / tail gate. The pressure of this can cause the tail gate to snap open after unlocking the locks which could hit someone. Unsecured drop sides / side extensions can snap open under the pressure.

- ► Before unloading bulk goods, make sure that the load is not pressing against the drop sides / tail gate.
- ► Before loading/unloading bulk goods, make sure that all drop sides are closed and properly secured.
- ► If required, first remove the bulk goods pressing on the drop sides / tail gate to be opened to relieve the pressure.
- ► Stand to one side when unlocking the drop sides / tail gate – not directly in front of them.

⚠ WARNING

Unloading a tipper trailer!

When tipping, people could be struck by a sliding load and be crushed or hit.

- ► Keep people away from the open drop side during the tipping process.
- ► When tipping, stand on the opposite side to the opened drop side.
- ► Tip the load in a controlled manner.

⚠ WARNING

Tipped cargo bed while unloading!

A tipped cargo bed can fold down spontaneously. You may be struck/crushed/knocked.

- ► Keep people away from the tipped cargo bed during the tipping process.
- ► Do not stand or reach underneath a tipped cargo bed.
- ► Make sure that your hands are not near the chassis during the tipping process.
- ► Do not leave a tipped/unsecured cargo bed unattended.

⚠ CAUTION

Tipping dry bulk goods

Dust may form and visibility be impaired when tipping dry bulk goods.

- ► Tip dry bulk goods slowly.
- ► If required, interrupt the tipping process.

Stepping / driving on trailer

Fig. 28 Driving on trailer

1 Drive-on tail gate

NOTICE

Overloading the loading ramps / cargo bed!

The loading ramps or the cargo bed can be deformed or break due to single point loading.

- ► Drive up the loading ramps / onto cargo bed slowly and evenly - no sudden movements.
- ► Do not drive on the loading ramps / cargo bed with a pallet loader or a mobile lifting platform (high point load due to small wheels).
- ► Avoid unnecessary load when driving on the ramp door / tail gate - e.g. Remove mobile tool fittings, accessories beforehand.
- ► Observe the maximum permitted load. Observe the information on the signs.

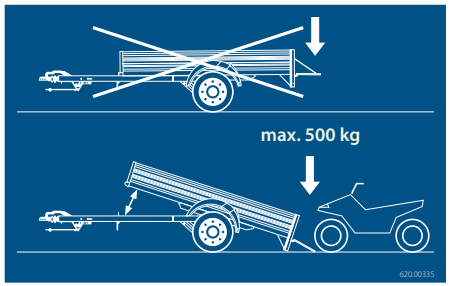


Fig. 29 Stepping on tipped cargo bed

1 Loading bridge tipped

WARNING

Stepping on tipped cargo bed!

When stepping onto a tipped cargo bed during the loading / unloading process, it could tip unexpectedly and you could fall.

- ► Use .
- ► Only step onto a tipped cargo bed for example when driving on construction machinery / a motorcycle.
- ► Slowly step back of the tipped cargo bed at the rear.
- ► Keep persons out of the danger zone under the loading bridge.

Fig. 30 Step onto cargo bed via loading ramps.

1 Ramp / loading ramp / drive-up ramp

CAUTION

Stepping onto cargo bed via loading ramps!

You may fall when stepping onto / off the cargo bed via the loading ramps.

- ► Use .
- ► Before stepping on, check that the loading ramp is secure and cannot slip off.
- ► Step onto the loading ramp from the rear - not from the side.

Loading / unloading motorcycles

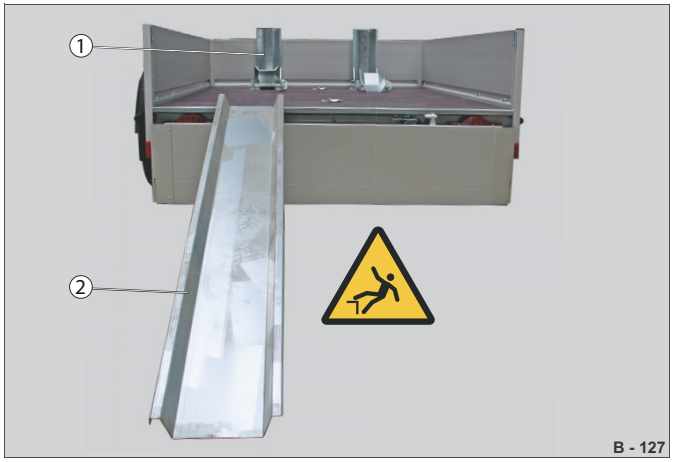


Fig. 31 Example 1: Transporting a motorcycle

1 Motorcycle stand
2 Loading ramp

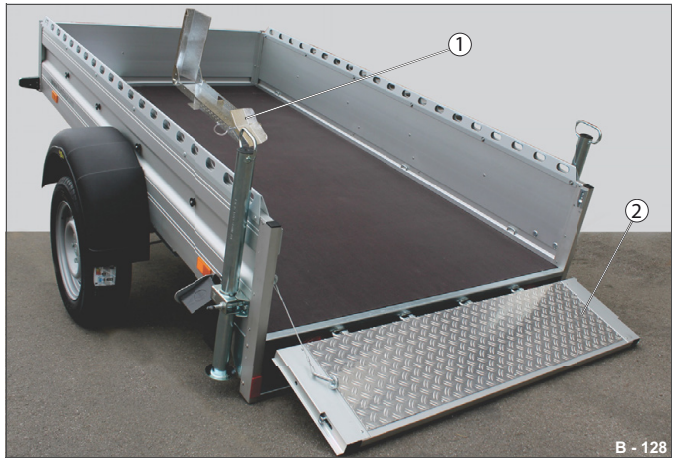


Fig. 32 Example 1: on tipper trailer

1 Motorcycle stand
2 Tailgate

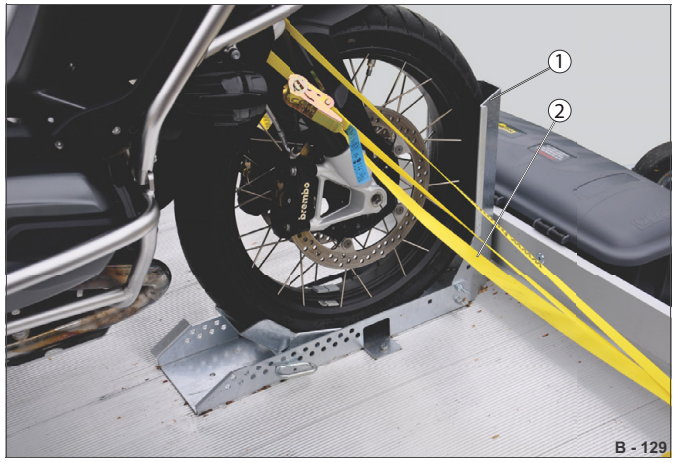


Fig. 33 Motorcycle secured in the motorcycle stand

1 Motorcycle stand
2 Lashing strap

WARNING

Loading / unloading a motorcycle with a loading ramp

The motorcycle could slip off - risk of being crushed!

People could slip off and fall over.

► Use  .

► Before loading/unloading, check that the loading ramp is secured to the cargo bed against sliding off.

► Adjust the motorcycle stand to the wheel size of your motorcycle.

► Push / drive the motorcycle on carefully.

► Have a second person help you if necessary.

WARNING

Loading a motorcycle onto a tipper trailer

The weight transfer will cause the trailer to top forwards - risk of crushing / falling!

► Use  .

► Only load /unload a tipper trailer when it is coupled to the towing vehicle.

► Drive slowly onto the cargo bed.

The motorcycle may only be transported secured and lashed into a motorcycle stand!

If necessary, have the motorcycle stand installed on the cargo bed.

Stepping onto a closed trailer body

Fig. 34 Operating the ramp wall

1 Ramp wall

WARNING

Stepping into a box trailer!

When stepping onto a lowered ramp door while loading / unloading, you could fall. You could also hit your head on the top edge of the trailer body.

- ► Use  .
- ► If the trailer body is low, duck your head.
- ► Only step onto / off of a ramp door from the rear - not from the side.
  Do not jump on or off.

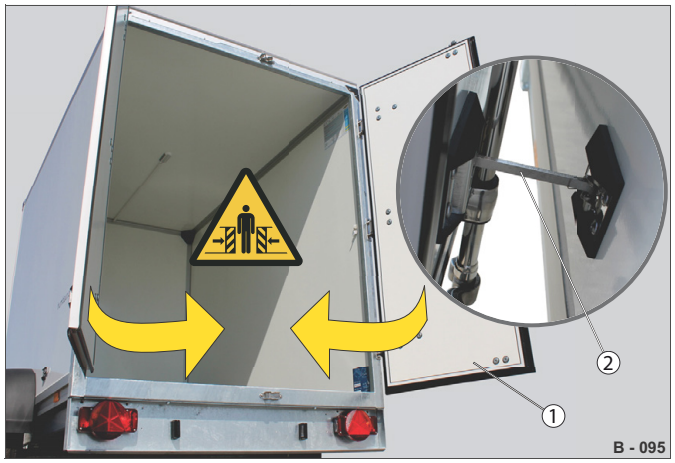


Fig. 35 Operating double doors

1 Double doors
2 Door holder

WARNING

Unsecured double doors when loading / unloading!

The double doors could unexpectedly swing shut in a gust of wind - risk of being knocked / crushed!

- ► Before loading or unloading, secure the double doors with door stops.
- ► Hold onto the double doors in strong winds / gusts of wind.

Fig. 36 Trailer which can be lowered with tail gate

1 Tailgate
2 Piston retainer (gas strut secured)

WARNING

Operate the tailgate!

When the tailgate is opened, the trailer could tip back - risk of being struck / crushed!

It is easy to knock your head on the open tailgate.

- ► Couple the trailer to the towing vehicle before opening the tailgate or first lower the cargo bed.
- ► Carefully step onto / off the cargo bed.
  Duck if necessary.
- ► Secure the tail gate using the piston retainer against folding down spontaneously.

Cable winch, manual

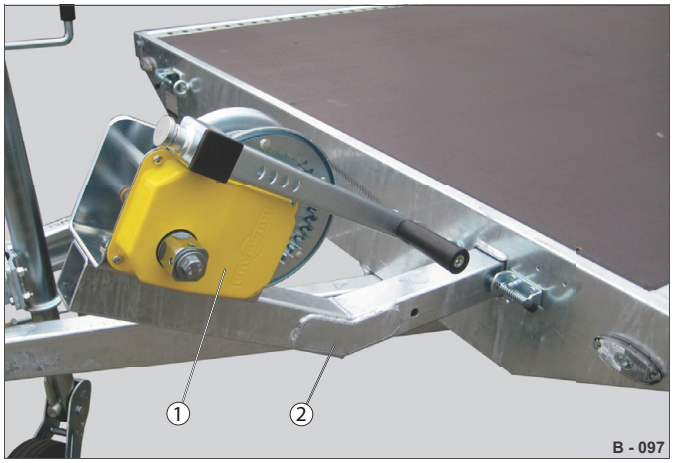


Fig. 37 Version 1: Cable winch, interchangeable

1 Cable winch (secured in park position)
2 Cable winch, adjustable

– The cable winch is a manual loading / unloading tool especially for car transport. Faulty vehicles can be pulled onto the cargo bed using the cable winch.
– The cable winch can be permanently attached or removable.

Instructions for operating the cable winch can be found in the type-specific operating manual part 2.

Fig. 38 Manufacturer type plate

The technical data with max. force data is provided on the type plate.

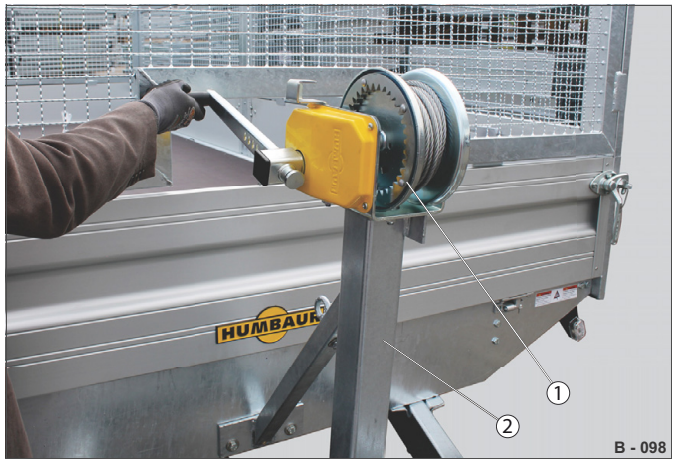


Fig. 39 Version 2: Cable winch attached in middle

1 Cable winch (operator setting released)
2 Cable winch frame, permanently attached in middle

⚠ WARNING

Using a damaged cable winch

A damaged cable will be weakened and may snap when placed under load. People could be hit or crushed by the cable and/or the load.

► Only use cable winches if undamaged and in perfect condition.
► Have the cable winch regularly serviced and repair it immediately if it is faulty.

► Position the cable winch frame (Fig. 37 /2).
► Open or remove the front drop side as required.
► Wind up the cable after use.
► Secure the cable to the ring with a hook.
► Switch the handle to parking position (see Fig. 37) and secure it.

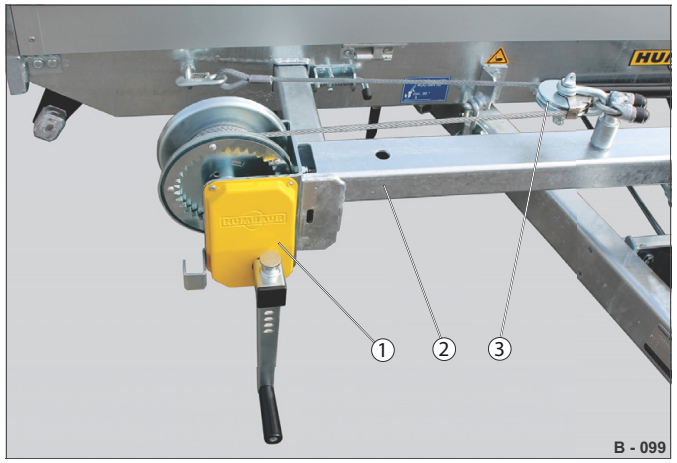


Fig. 40 Version 3: Cable winch with pulley system

1 Cable winch, at side
2 Frame
3 Pulley

⚠ CAUTION

Operating the cable winch

You could crush your hands/fingers in the cable winch while rolling or unrolling the cable.

You could lacerate your hands on broken individual wires of the cable.

► Use .
► When operating the cable winch, ensure that the cable has no individual broken wires.
► Ensure that your fingers do not get caught in the cable winch when rolling up the cable.

► Position the pulley (Fig. 40 /3).

Cable winch, electric

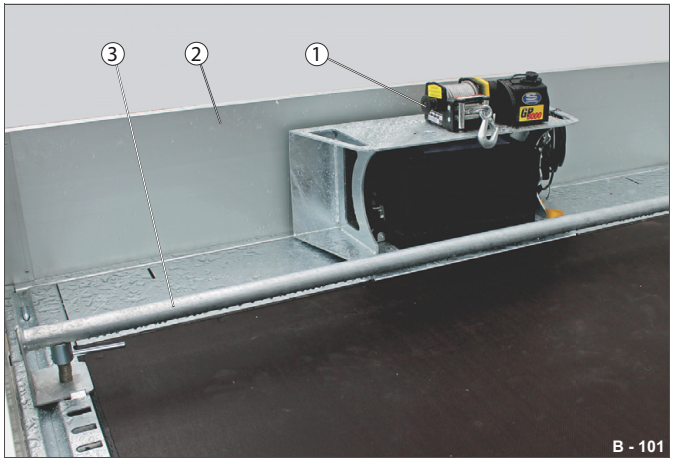


Fig. 41 Example 1: Cable winch, fixed

1 Cable winch with battery box
2 Front drop side
3 Wheel stop rod

– An electrically operated cable winch is operated by remote control.
– An electric cable winch is mounted either inside on the cargo bed or outside on the chassis.

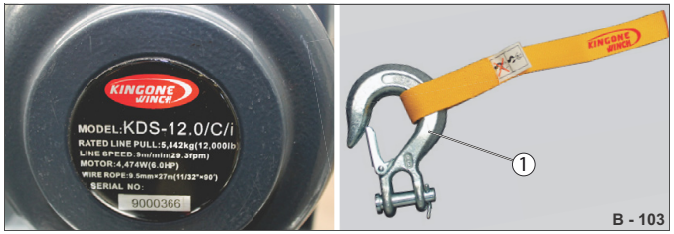


Fig. 42 Example: Manufacturer type plate

1 Hook with loop

The technical data with max. force data is provided on the type plate.

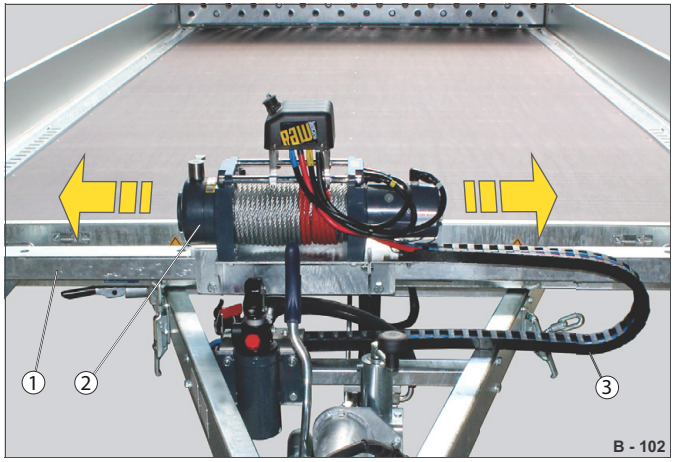


Fig. 43 Example 2: Adjustable cable winch

1 Cable winch frame
2 Cable winch
3 Cable tow

Fig. 44 Example: Operating instructions from manufacturer

You will find how to operate the electric cable winch in the manufacturer's documentation.

► Position the cable winch.

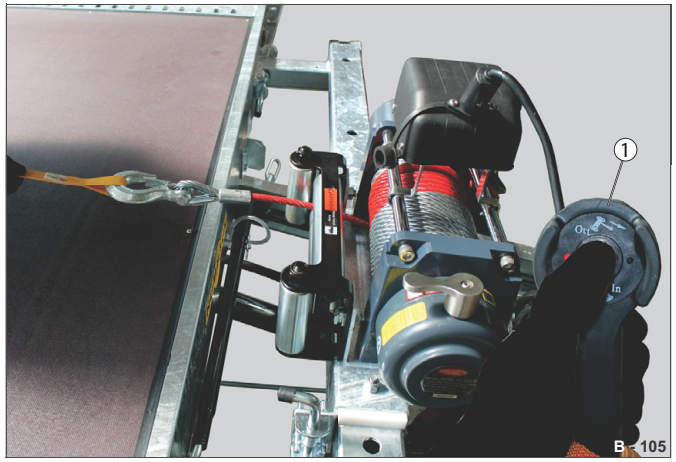


Fig. 45 Example 2: Cable winch with remote control

1 Remote control (drive)

► Open or remove the front drop side as required.
► Wind up the cable after use.

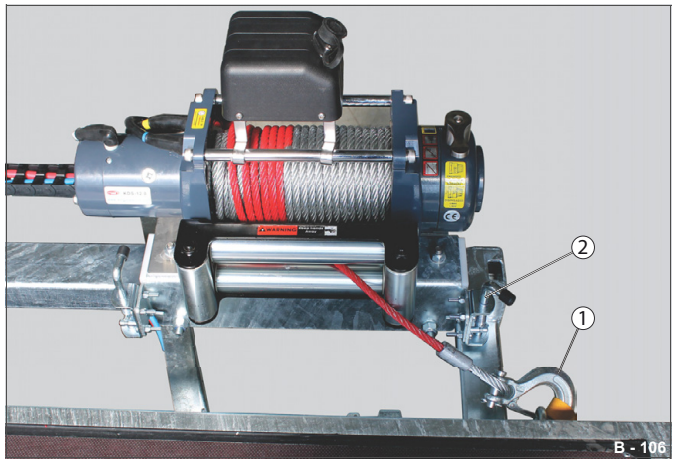


Fig. 46 Park position (drive position)

1 Hook secured
2 Cable winch secured

► Secure the hook and the cable winch.

Load securing / loads

To avoid accidents and to prevent personal injury and material damage, it is important to carefully check the load distribution and how well it is secured.

You should carefully load and unload your trailer, taking into account all safety precautions required on public roads and all accident prevention regulations.

Definition for load / mass:

Max. permissible total mass (gross weight GG)

Total mass = trailer net weight + load capacity

– on type plate and on the "Registration certificate" (Part 1)

– The total mass of the trailer may no exceed the following values:
1. Permitted trailer load for the towing vehicle
2. Permitted total mass of the towing vehicle

Mass of trailer (own mass)

Own weight of unloaded trailer.

Trailer load towing vehicle

The permitted trailer load is stated in the registration certificate Part 1.

Under no circumstance may the trailer load may not be exceeded by the actual weight of a loaded trailer.

Load capacity

Max permitted load weight of the trailer in kg.

Load capacity = total mass - own mass trailer

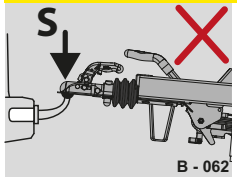
Drawbar load (s)

The load which pressed down in the car coupling by the trailer.

The max permitted drawbar load is stated on a label on the trailer and can be found on the registration certificate Part 1.

Load distribution

CAUTION



Non-compliance with the drawbar load!

If the trailer is incorrectly loaded, then negative / inadequate drawbar load, or exceeding the max. permissible drawbar load can cause accidents.

The trailer could start snaking, tip over, come uncoupled - accident risk!

► Distribute the load (weight) evenly on the cargo bed - avoid single point loading.

► Distribute the load so that no negative drawbar load is created or respectively, that the max. permissible drawbar load is complied with.

► Never exceed the max. permissible drawbar load of the car coupling.

► Where possible, make use of the maximum permissible drawbar load (see COC papers, Section 19).

► Observe the information on the maximum permissible drawbar load in the vehicle papers for the trailer coupling.

► Do not exceed the maximum permissible drawbar load of the trailer.
- Observe the information on the maximum permissible drawbar load on the trailer plate and in the registration certificate Part 1.

Distributing the load on the cargo bed

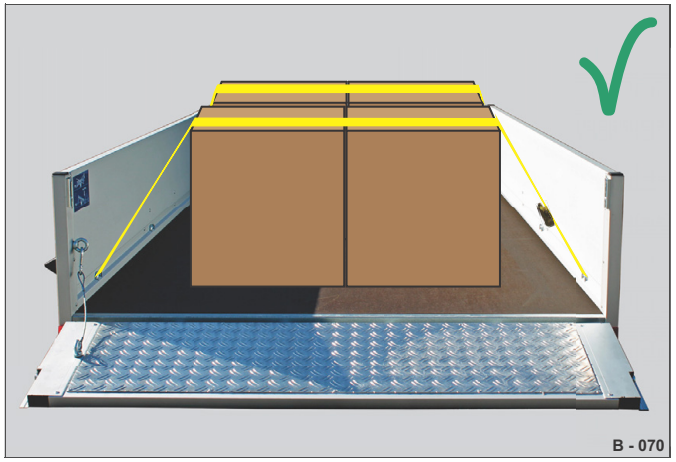


Fig. 47 Positioning the load

NOTICE

Poor / incorrect load distribution of the goods!

Severely uneven / point load distribution can lead to over-stressing and damage to the trailer components.

► Position the heaviest objects centrally on the cargo bed in the area of the axles.

► Distribute the goods evenly on the cargo bed according to their weight.

► Avoid single point / one-sided distribution of the load.

► Do not position the load on / over the drop sides - they are not designed for bearing weight.

Before loading, check the max. load capacity that you are able to transport with your trailer.

Check that the max. permissible total mass (gross weight GG) of your trailer is not exceeded.

Correct load distribution

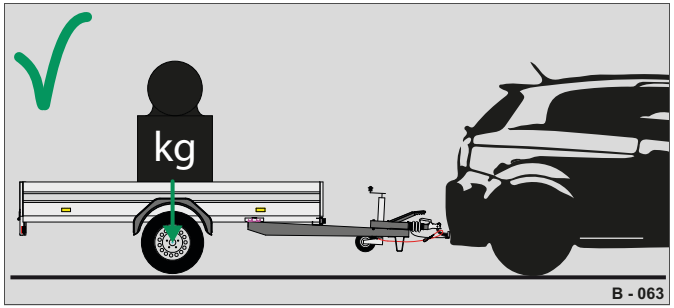


Fig. 48 Load in axle area

- Heaviest weight in the load positioned above the axle in the middle.
- Additional load evenly distributed over the cargo bed.
- Avoid single point / one-sided loading.
- Max. permissible drawbar load adhered to.
- Minimum drawbar load ensured.
- Optimal road holding (ground contact) attained.
- Braking effect is greatest.
- Optimal road handling (no snaking).
- Risk of swerving lowest.

Incorrect load distribution

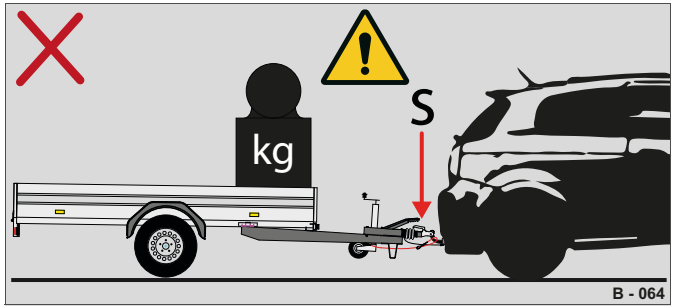


Fig. 49 Load too far forward (toward car)

- Heavy weight of load positioned too far forward, the rear of the car is lowered - overloading rear axle and frame.
- The tow hook on the trailer is overloaded.
- Maximum permissible drawbar load is exceeded.
- Poor road holding (reduced ground contact).
- Braking effect is reduced / poor.
- Limited ability to steer / poor road handling.

Incorrect load distribution

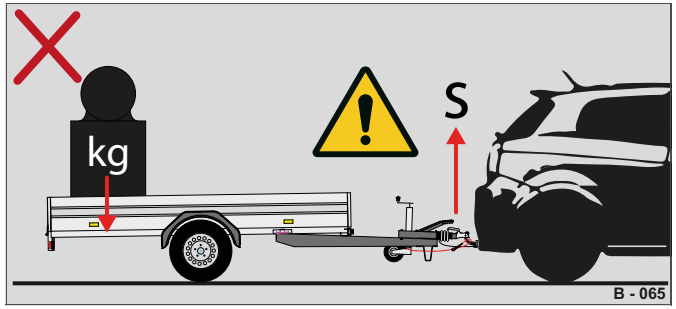


Fig. 50 Load too far back (at rear of trailer)

- Heavy weight of load positioned too far towards the rear, the rear of the car is raised - overloading front axle.
- Increased wear on the trailer coupling.
- Necessary minimum drawbar load not reached.
- Poor road holding (reduced ground contact).
- Braking effect is reduced / poor.
- Limited ability to steer / poor road handling.
- The trailer tends to snake.
- Increased risk of swerving while driving.

Forces released

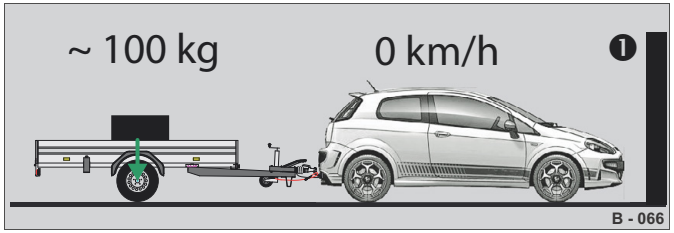


Fig. 51 100 kg load (static)

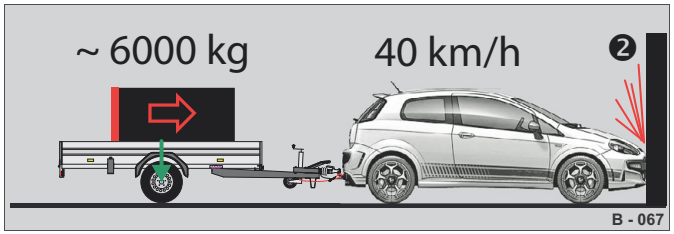


Fig. 52 at 40 km/h this equates to 6000 kg dynamic force

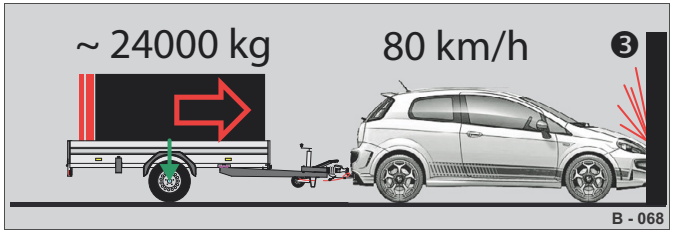


Fig. 53 at 80 km/h this equates to 24000 kg dynamic force

Please note that a small weight / load can become a missile at high speed.

– The weight force [m] is used as the starting point for dimensioning load securing.
– In the event of a frontal impact or emergency braking, kinetic energy is released. This energy needs to be absorbed by the lashing straps / drop sides.

Conclusion

– As the speed increases, it also increases the inertia forces / centrifugal forces of the load:

  1. at 0 km/h = 100 kg kinetic energy
  2. at 40 km/h = ~ 6000 kg kinetic energy
  3. at 80 km/h = ~ 24000 kg kinetic energy

– When doubling the speed, the kinetic energy released by the unsecured load increases four-fold in the event of an emergency stop.
– As a result of incorrect / poor load distribution, serious accidents can also occur at low speeds.
– Overloading the trailer is a risk created with intent, which can cause the trailer to snake even after a minor steering manoeuvre / a bump in the road / a gust of wind.

Friction values / Material pairs

pairing	dry	wet	greasy
Wood - wood	0.2 - 0.5	0.2 - 0.25	0.05 - 0.15
Metal - wood	0.2 - 0.5	0.2 - 0.25	0.02 - 0.1
Metal - metal	0.1 - 0.25	0.1 - 0.2	0.01 - 0.10
Concrete - wood	0.3 - 0.6	0.3 - 0.5	0.1 - 0.2
Steel frame - wooden surface	0.4	0.4	
Wooden beam - wooden surface	0.5	0.5	
Anti-slip mat with all material pairings	0.6		
Plastic / mesh box pallet - on screen floor	0.25		
Rubber tyre on steel loading surface	approx. 0.3	approx. 0.1 - 0.2	

Tensioning forces

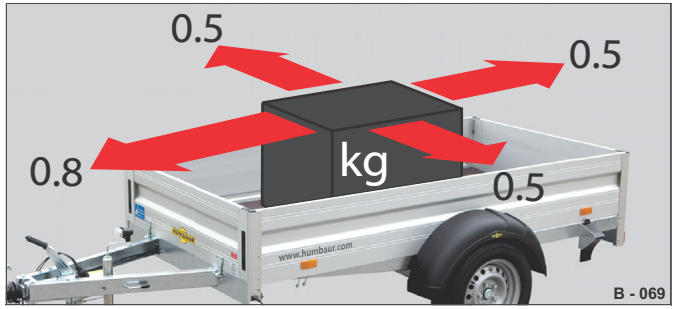


Fig. 54 Forces to be secured against sliding

Securing to the front (in event of emergency stop)
0.8 or 80% of weight force - friction force (e.g. 0.3):
e.g. 500 kg x (0.8g - 0.3) = 250 daN

Securing to the side / to the rear
(when taking evasive action / starting off / taking corners)
0.5 or 50% of weight force - friction force (e.g. 0.3):
e.g. 500 kg x (0.5g - 0.3) = 100 daN

► Counteract the potential forces released by:

- correct load distribution
- adequate load securing appropriate for the weight of the load (lashing means, lashing points)
- use of slip-resistant materials (anti-slip mats)
- correct securing of the load, e.g. with cover net, tarpaulin, side wall extension, H-frame, etc.
- suitable speed

Load securing for transport

Load securing is an important safety point when transporting goods. Adhere to national and if applicable international regulations. The load must be safely and securely lashed to the vehicle in accordance with regulations according to StVO (German Road Traffic Act) / StVZO (Road Traffic Licensing Regulations), VDI 2700 ff., BGV D29 (German Employers' Liability Association) and DIN 12642 or other permitted fastening aids may be used which are strong enough for the respective load.

– The driver, vehicle holder, loader and sender are equally responsible for the safety of the load.
– There are three obligations that only affect the driver:

  1. Duty to check load securing and load distribution before setting off.

  2. Duty to check and rectify load securing during transport.

  3. Duty to adjust driving style according to the load (adjusted driving style).

WARNING

Unsecured / poorly secured load!

The load can shift while driving - while turning sharp corners, on uneven road surfaces or when driving on steep roads (mountains) - which can unbalance the trailer or cause the goods to be thrown directly out of the trailer.

► Secure the load properly.
► Make sure that the load is secured positively and non-positively before driving off.
► While driving (during breaks from driving) check that the load is still secure - if necessary re-tighten it.
► Pay attention to national regulations on load securing.
► If applicable, pay attention to special transport and securing regulations for specific goods.
► If applicable, fit more lashing points.

► Secure the load positively or non-positively respectively.

  1. positively: whole cargo bed filled through shape of the load so it can’s slide.

  2. non-positively: by lashing down using lashing straps, wire cables, etc.

► Where possible, combine positive and non-positive load securing.

Tie-down options

Tying the load across the drop sides or by wrapping around the chassis is prohibited!

For non-positive securing of the load, you need to use tie-down brackets / tie-down rings in the drop side profile or on the cargo bed!

WARNING

Exceeding the max. tie-down forces / not complying with the min. tie-down angle.

The tie-down points can break and the load is no longer held securely. If the tie-down angle is < 30 °, then the load is not tensioned enough.

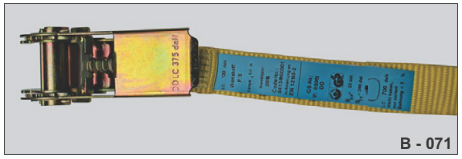
► Observe the max. tie-down forces per tie-down point. Observe the max. data on the label on the trailer.
► Tie down the load to the tie-down points with a tensioning angle of more than 30°.

WARNING

Using unsuitable / faulty tie-down materials!

Faulty / unsuitable tie-down materials, e.g. tie-down straps, chains, wire cables, cannot hold the load securely.

► Only used tested tie-down straps (TÜV, GS).


B - 071

► Only use tie-down straps with suitable strength (pre-tension force Lc value).
► Before tying down, please make sure that the tie-down materials are not damaged, there are no tears, kinks, worn patches.

Tie-down points in / on the cargo bed

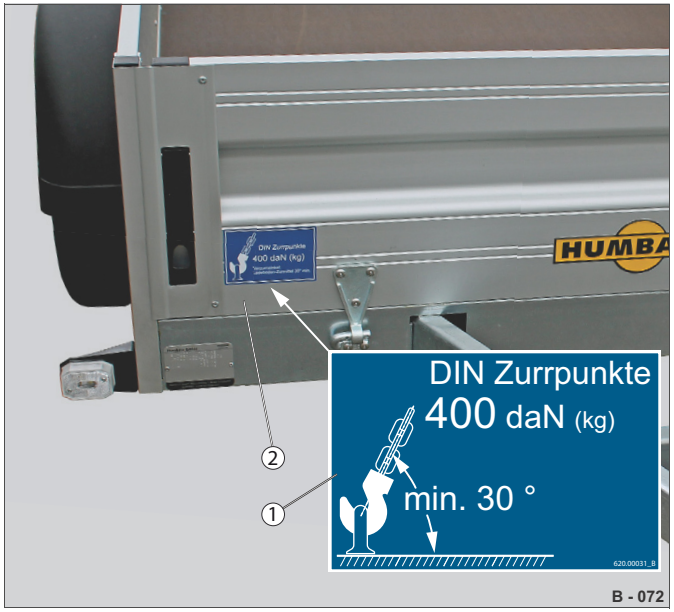


Fig. 55 Example: Tie-down force information

1 Sticker
2 Front drop side

► Check that the number of tie-down points and the max. tie-down forces are sufficient for the goods to be tied down.
► If applicable, fit more lashing points.
► Replace any damaged / worn tie-down points.

Tie-down points

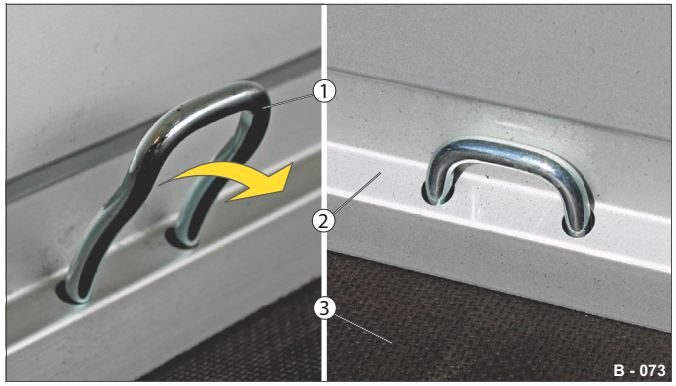


Fig. 56 Tie-down brackets which can be recessed
Tie-down force = max. 400 daN (kg)

1 Tie-down bracket
2 Drop wall profile
3 Cargo bed (floor plate)

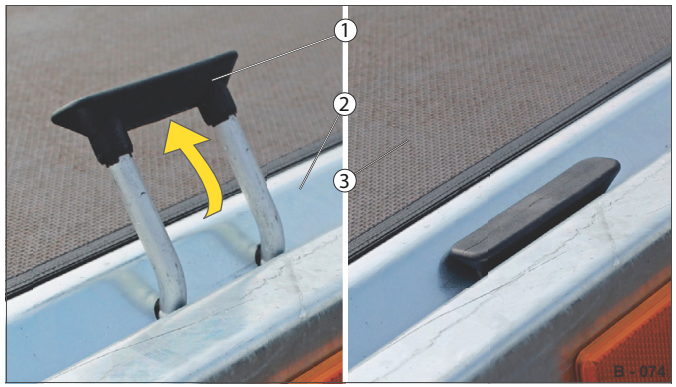


Fig. 57 Tie-down brackets which can be recessed
Tie-down force = max. 800 daN (kg)

1 Tie-down bracket
2 V lashing rail
3 Cargo bed (floor plate)

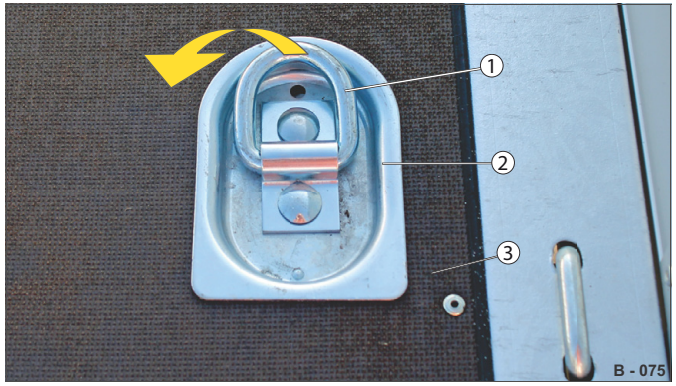


Fig. 58 Recessed tie-down points (optional)
Version 1: Tie-down force = max. 200 daN (kg)
Version 2: Tie-down force = max. 400 daN (kg)

1 Tie-ring
2 Trough recess
3 Cargo bed (floor plate)

Fig. 59 On-surface tie-down points (optional)
Tie-down force = max. 200 daN (kg)

1 Tie-ring,
screwed onto the cargo bed

Lashing material

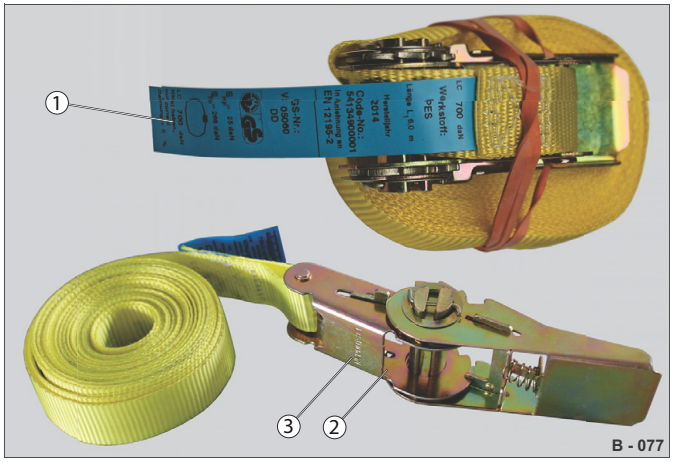


Fig. 60 Humbaur tie-down straps

1 Label (technical data)
2 Ratchet
3 Force specified: Lc 400 daN

Humbaur tie-down strap # 670.00002:

– Band width 25 mm, 6000 mm long
Breaking force 500 daN
– with ratchet

Fig. 61 Humbaur case sets

1 Car-Lashing Set
2 Lashing strap set

Car-Lashing-Set # 753.00001 packaged in a transparent plastic case (395 x 295 x 106 mm) consisting of:

– 4 xlashing strap: Bandwidth 35 mm with link strap Breaking load 1000 daN with short fixed end and integrated simple claw hooks
– 1 x high-viz vest yellow
– 1x work glove

Lashing strap set # 753.00002 packaged in a transparent plastic case (395 x 295 x 106 mm) consisting of:

– 4 xlashing strap: Bandwidth 35 mm, length 5000mm, Break load 1000 daN, with integrated claw hook
– 8x PU edge protection slit 35 mm

Fig. 62 Application example: Humbaur lashing strap set

1 Lashing strap
2 Tie-down brackets, retractable

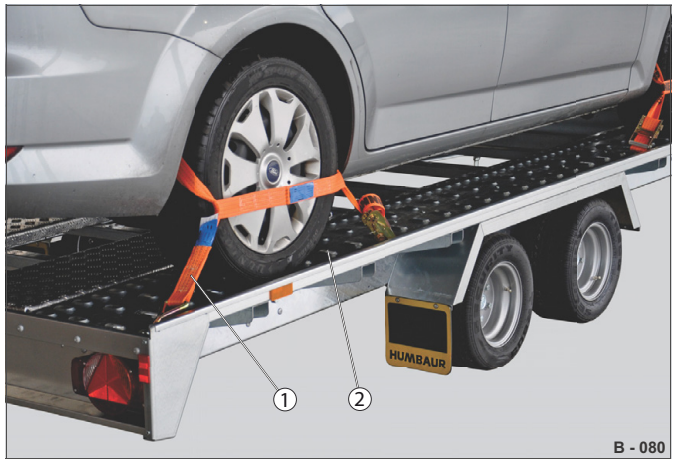


Fig. 63 Application example: Humbaur Car-Lashing Set

1 Lashing strap with claw hook
2 Slots

Tying down / securing the goods

Fig. 64 Negative example

1 Attached to chassis
2 Cover net
3 Load

The following points have been done incorrectly:

– The goods are attached across the drop sides on the chassis (Fig. 64 /1).
– The high load (Fig. 64 /3) is dangerous to be transported upright - extremely high risk of tipping over when cornering.
– The cover net (Fig. 64 /2) is connected incorrectly to trailer components.
The cover net is unsuitable for this application.

Fig. 65 Example: Load securing solid goods

1 Tie-down point
2 Anti-slip underlay

► Only tie down the load to the lashing points attached (Fig. 65 /1).
► Use anti-slip underlay (Fig. 65 /2) or weight distributing material such as a pallet.
► Pay attention to the operating instructions (forces specified) for the lashing materials used.

Fig. 66 Example: Load securing bulk goods

1 Material cones (gravel, sand, ballast, wood chips)

As specified in the directive VDI 2700, then bulk goods only need to be covered if they could fall out while driving or could be blown out.

► Load the bulk goods so that the material cone does not rise above the height of the drop sides.
Flatten the material cone.
► Secure light bulk material, such as dry sand, leaves, etc. with a flat cover or a cover net.
► Make sure that if you brake or steer abruptly or if there is a strong wind that the bulk goods are not thrown or blown out over the drop sides.

Driving with the towing vehicle and trailer

Fig. 67 Example: Driving with the towing vehicle and trailer

Before setting off:

- ► Carry out a departure check.
  Check the points / components systematically - see “Departure check” on page 33.
- ► Pay attention to the general safety advice - see “Check, adjust and secure before each journey” on page 13.
- ► Before setting off, make sure that the generally permitted dimensions of the trailer with load together are no more than 4 m high and no more than 2.55 m wide (in Germany according to Section 22 paragraph 2, StVO (German Road Traffic Act)).
- ► Before setting off and during breaks on the journey, make sure that the goods are adequately secured.

While driving:

- ► Adapt your speed to the road and weather conditions.
- ► Drive carefully on inclines when the trailer is loaded - drive more slowly, apply brakes.
- ► Do not exceed the maximum speed permitted outside of built-up areas (highways, motorways, main roads, dual carriageways).
  - In Germany this means max. 80 km/h or 100 km/h respectively.
- ► Side wind which suddenly appears, e.g. on bridges, when overtaking, when changing terrain, can cause your car and trailer to start snaking.
  Slowly reduce the speed.
  Avoid hectic / jolting steering manoeuvres.

Applying brakes:

The braking style for a car and trailer is different than that of a car without a trailer. The braking distance increases as the load increases.
The ABS system on your car does not control the overrun device of a braked trailer.

- ► Do a test brake before every journey.
- ► For trailers with an overrun device, initially brake gently, then rapidly brake to a stop - this will avoid the wheels locking.
- ► Start braking early on.
- ► If you do not have any experience in driving a car with a trailer - then carry out brake tests on a suitable site.

Driving at 100 km/h

Fig. 68 Maximum speed / 100 km/h sticker

In Germany, your trailer can be licensed for a top speed of max. 100 km/h. In other countries, the top speed for cars with trailers outside built-up areas may vary. Comply with the national road traffic regulations.

Several factors need to be met for a 100 km/h licence.
For more information-
see “Licensed to be driven at 100 km/h” on page 160.

- ► Check whether your trailer and car meet the requirements for a 100 km/h permit.
- ► Have any missing wheel shock absorbers retrofitted to your trailer.

Circling / cornering

Fig. 69 Steering in / turning circle

NOTICE

Risk of collision if corner is turned too sharply / when reversing / turning around!

If the steering wheel is turned too sharply, e.g. when reversing, then the trailer / support wheel / drawbar could collide with the car - material damage.

- ► When turning corners / turning around / reversing, do not steer too sharply - pay attention to the area behind you.

The turning circle of your trailer depends on many factors: Length of trailer, length of drawbar, support wheel attached to side.

For long trailers and turntable trailers, the turning circle is larger and the follow-up curve smaller.

- ► When using your trailer for the first time, check how tightly you can turn with the trailer.

Reversing

Fig. 70 Manoeuvring

When reversing, the view to the rear is blocked by the load or the trailer body.

- ► Be especially careful when reversing. Please note that it may be necessary to turn the steering wheel the opposite way.
- ► Practice reversing in a suitable area.
- ► If necessary, allow someone to guide you.
- ► Make sure that you can always see the person in your wing mirror.
- ►  Keep people who are not involved away from the back of the trailer.

Manoeuvring

Fig. 71 Manoeuvring with an unbraked trailer

1 Underride protection
2 Drawbar
3 Coupling handle

⚠ CAUTION

Manoeuvring with a loaded trailer!

The trailer could top over if the load slips.

The max. load of the support wheel is exceeded.
The support wheel could break off and the trailer could tip over.
The load could fall off the trailer.

- ► Only manoeuvre with an unloaded trailer or only with a lightly load, such as with dry leaves.
- ► Before manoeuvring, check that you can move the trailer.
- ► Do not drive over any obstacles, such as stones, curbs, etc.

- ► Manoeuvre the trailer on level ground if possible.
- ► Park the trailer wherever possible on level ground/an even surface – not on a slope or on an uphill or downhill incline.

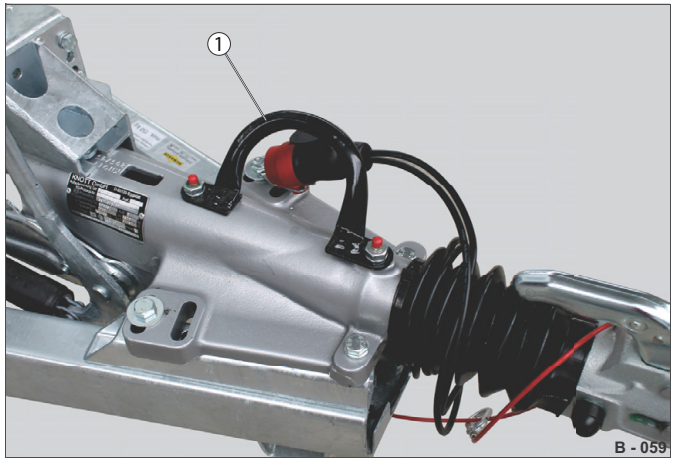


Fig. 72 Manual manoeuvring of the trailer

1 Manoeuvring handle (optional)

- ► Use the handle (Fig. 72 /1) on the overrun device for manual manoeuvring.
- ► Use  .

Preparation

- ► If applicable, lower the support wheel.
- ► Close the tail gate, drop sides, etc.
- ► Remove the wheel chocks.

Manoeuvring

- ► Hold the coupling handle (Fig. 71 /3) and the drawbar (Fig. 71 /2).
- ► Slightly lift the drawbar. Please note that the underride guard (Fig. 71 /1) does not touch the floor.
- ► Push the trailer in the desired direction.
- ► Ensure that your feet do not get under the jockey wheel / drawbar / ball head coupling.

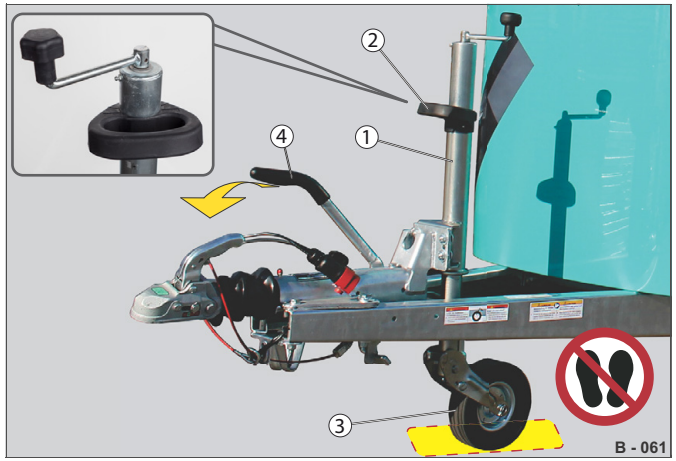


Fig. 73 Manoeuvring with a braked trailer

1 Automatic jockey wheel
2 Manoeuvring handle (optional)
3 Jockey wheel
4 Hand brake lever

- ► Wind the jockey wheel (Fig. 73 /3) down so that the jockey wheel can move under the drawbar.
- ► Release the hand brake lever (Fig. 73 /4).
- ► If applicable, hold the manoeuvring handle (Fig. 73 /2) or the round rod of the automatic jockey wheel.
- ► Move the trailer in the required direction - watch out for your feet.
- ► After manoeuvring, secure the trailer from rolling away before uncoupling.

Parking the trailer

Avoid parking a trailer for a lengthy period when loaded.

Parking a trailer without a towing vehicle in a public area (roads) is only permitted for a limited period of time.

Please note:

- Where possible park a trailer in a closed area or an area with a roof. The ground should be level, dry and solid.
- Both wheels of an axle must be supported in only one direction in single-axle trailers, in order to prevent the trailer from rolling away on one side.
- In closed spaces, ensure there is good ventilation to prevent condensation building up under tarpaulins and polyester covers.
- Where possible, protect the trailer from being stolen and from unauthorised use by third parties, especially children.
- Make sure that no one is endangered by parking the trailer and that it does not impede the traffic on the road.
- Make sure that when parking in a public area, the lights, retro-reflectors, number plate are not covered. If applicable, use parking warning signs front + back of trailer (pay attention to section 17 of the StVO (German Road Traffic Act) on this).

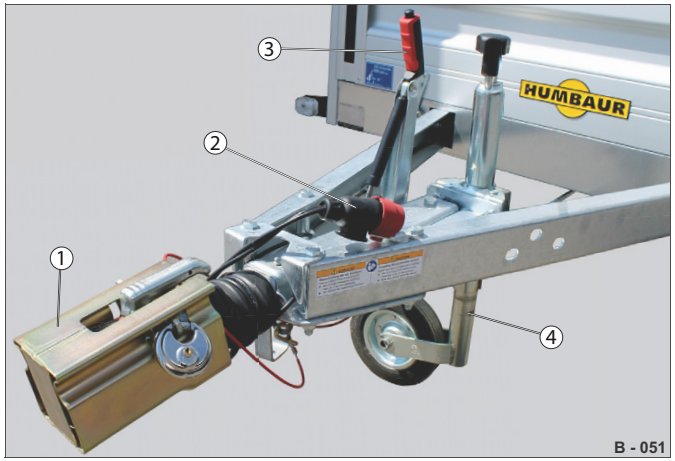


Fig. 74 Trailer braked, secured

1 Metal locking shoe (anti-theft device)
2 Electrical plug
3 Hand brake lever
4 Jockey wheel

Uncoupling a single-axle trailer with a load (without additional supports) is not permitted - risk of tipping up!

WARNING

Incorrectly uncoupled trailer

The trailer could start moving and tip over. People could be struck by the trailer and run over - risk of crushing!

► Only uncouple the trailer when it is empty.

► Use wheel chocks and the parking brake to secure the trailer from rolling away before uncoupling.

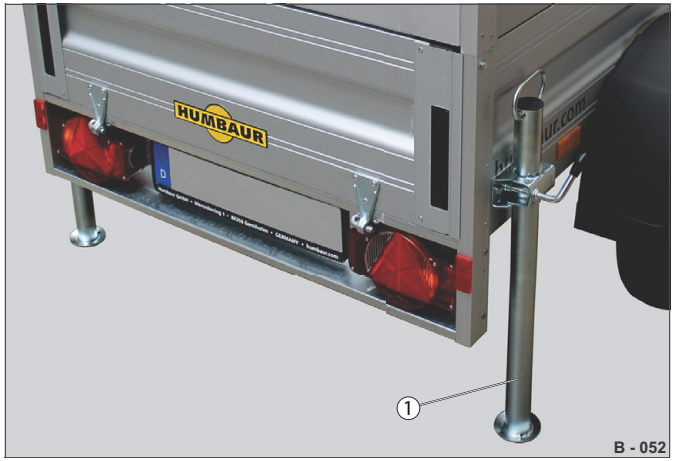


Fig. 75 Trailer secured with supports

1 Prop stands

As an option, the trailer can be fitted with additional supports, e.g. prop stands (Fig. 75 /1), to be able to park it with a light load and remain stable.

Wheel chocks

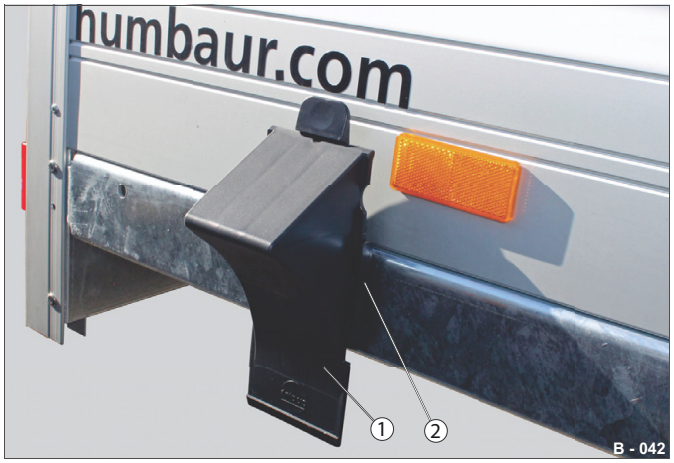


Fig. 76 Example 1: Wheel chocks vertical at side

1 Wheel chock
2 Holder

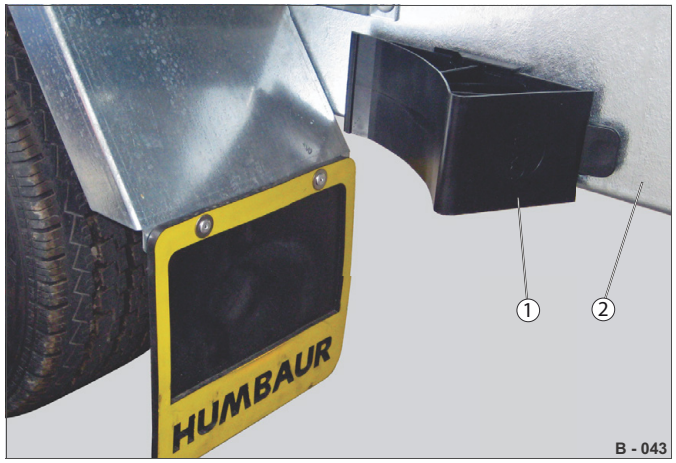


Fig. 77 Example 2: Wheel chocks horizontal at side

1 Wheel chock
2 Chassis under trailer body

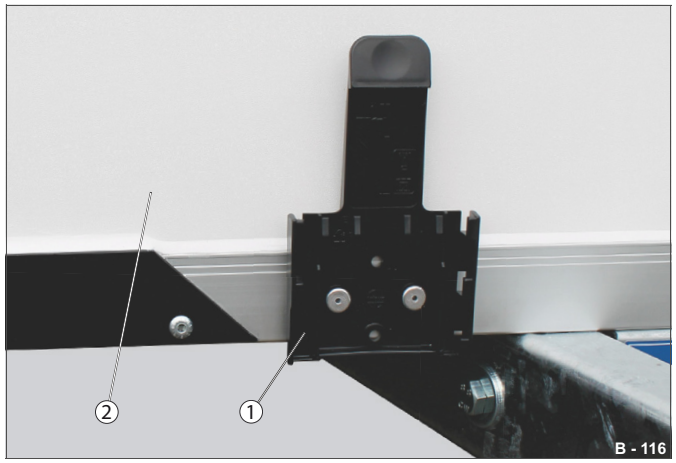


Fig. 78 Example 3: Wheel chocks vertical at front

1 Bracket for wheel chock
2 Front (e.g. on box)

Unbraked trailer up to 750 kg total mass are supplied without wheel chocks.

Braked trailers are equipped in the factory with 2 wheel chocks.

Wheel chocks must always be available. If wheel chocks are lost or damaged, they need to be replaced.

In addition to the parking brake, the trailer must be secured with wheel chocks on slopes / gradients and when uncoupled.

WARNING

Unsecured wheel chocks

Unsecured wheel chocks could fall off while driving - risk of accidents!

- ► Make sure that the wheel chocks are secured in the brackets before driving off.
- ► Check the holders for damage at regular intervals.

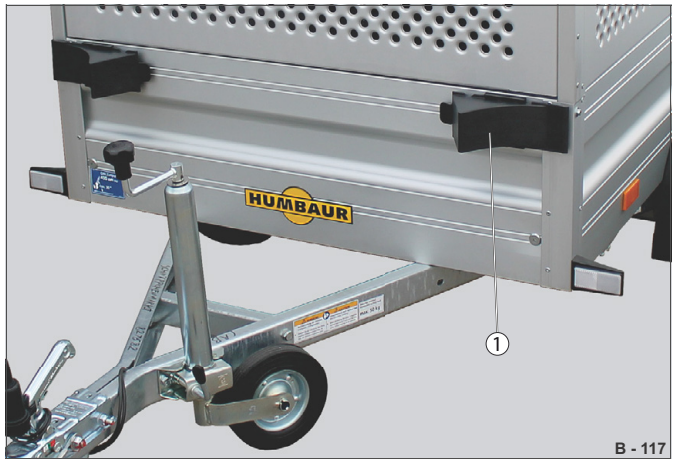


Fig. 79 Example 4: Wheel chock at front, retrofitted

1 Wheel chock, secured horizontally

- ► Retrofit your unbraked trailer with wheel chocks.

Manipulating the wheel chocks

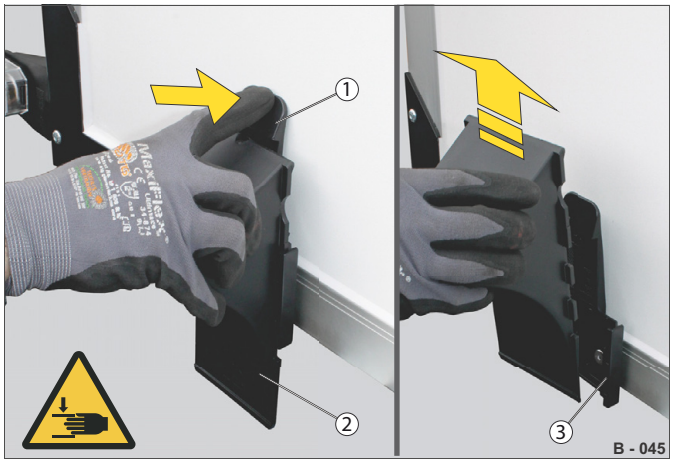


Fig. 80 Removing the wheel chock

1 Lever
2 Wheel chock
3 Holder

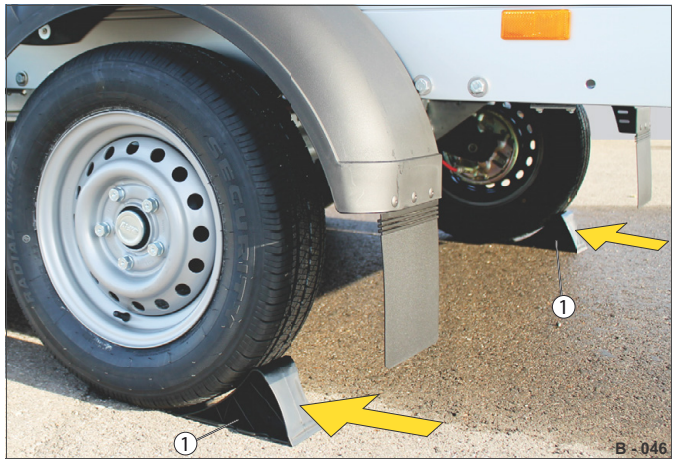


Fig. 81 Wheel chocks positioned

1 Wheel chock

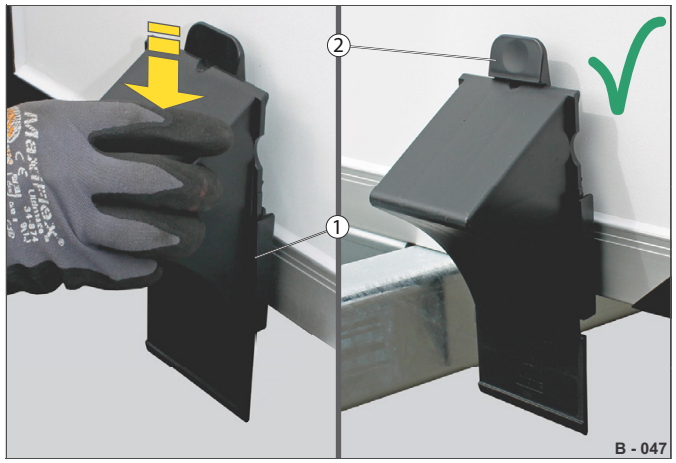


Fig. 82 Secure the wheel chock (driving position)

1 Notch / lug
2 Lever

CAUTION

Manipulating the wheel chocks

You could crush your hands / fingers when using the wheel chocks. You could also hit your head on the chassis / body.

► Use  .
► Operate the wheel chocks slowly and carefully.
► Avoid jerky movements.

► Press the lever (Fig. 80 /1) of the holder (Fig. 80 /3).
► Slide out the wheel chock (Fig. 80 /2) at the same time.
► Remove the wheel chock from the holder.

► Place the complete surface of the wheel chocks (Fig. 81 /1) under the wheels.
Consider the direction of inclination of the trailer e.g. on a slope.

► Position the wheel chock in the holder (Fig. 80 /3) - Notches must be aligned to match up with lugs (Fig. 82 /1).
► Slide the wheel chock into the holder until it engages - a clicking noise can be heard.
The lever (Fig. 82 /2) secures the wheel chock against falling out.
The wheel chocks have been secured in the holders.

Hand brake / Parking brake

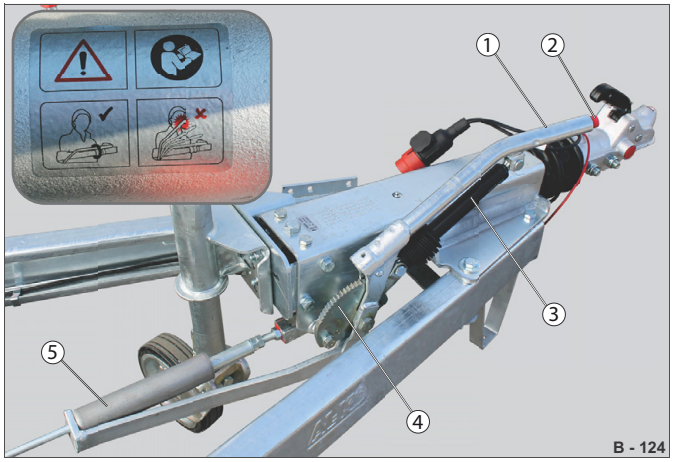


Fig. 83 Example 1: Hand brake released (driving position)

1 Hand brake lever at bottom
2 Pushbutton
3 Gas strut
4 Gear segment
5 Brake linkage with spring mechanism

– The hand brake (parking brake) is to secure the trailer against rolling away.
– Trailers can be fitted with various types of hand brake (weight-dependant).
– Unbraked trailers do not have a hand brake.

CAUTION

Operating the hand brake!

You could pinch / crush hands / fingers on the drawbar / ball head.

You could be hit when the hand brake lever moves upwards.

► Operate the hand brake slowly and carefully.

► Make sure that your hand is not in the area where it can be crushed and your body is not in the moving area.

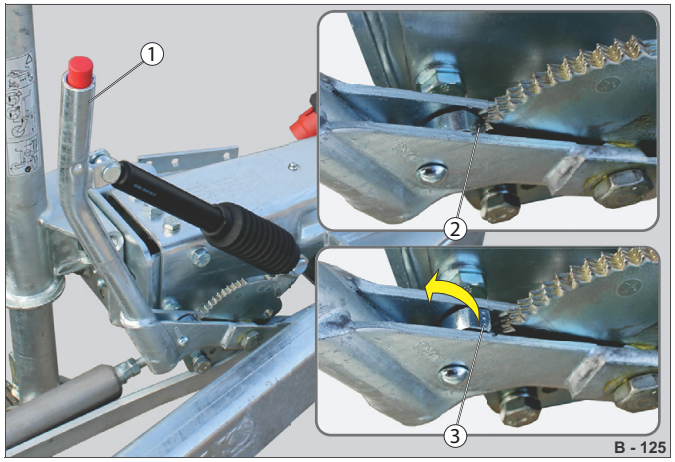


Fig. 84 Hand brake applied / secured

1 Hand brake lever at top
2 Safeguard on toothed segment
3 Safeguard released (press button pressed)

On a parking brake with toothed segments, the hand brake lever needs to be applied to the last tooth and needs to be released to the first tooth.

WARNING

Driving with the hand brake applied / not completely released!

The brake shoes could block the wheels - Risk of snaking / accidents!
The brakes get hot.

► Make sure that the hand brake is completely released before driving off.

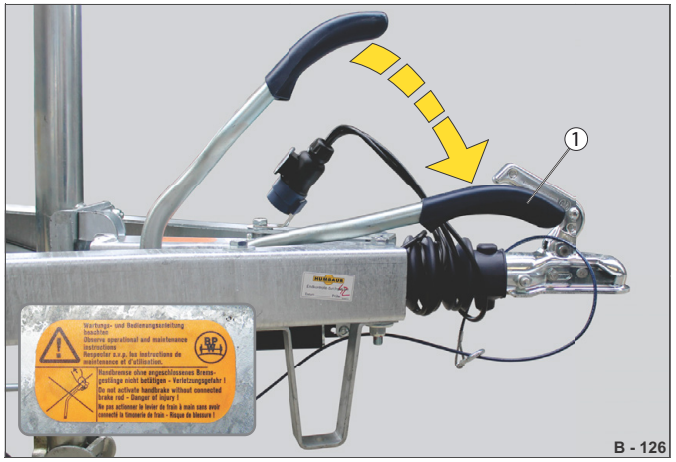


Fig. 85 Example 2: Hand brake released (made by BPW)

1 Hand brake lever at bottom

WARNING

Releasing hand brake on unsecured trailer!

The trailer could start moving spontaneously - risk of impact!

► Couple your trailer to the car.

► Release the hand brake once your trailer is secured with wheel chocks.

CAUTION

Uncontrolled movement of the trailer when the hand brake is applied!

Trailer could roll back approx, 25-30 mm when uncoupled until the full braking force is applied.

► When parking your trailer, make sure there is enough space behind it.

► Always apply the hand brake completely - if applicable, push the trailer backwards slightly so that the full braking force is reached.

Hand brake without push button

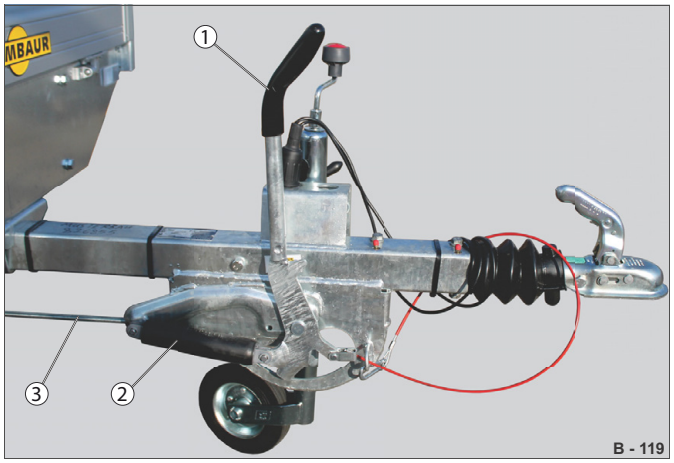


Fig. 86 Hand brake applied (made by Knott)

1 Hand brake lever at top
2 Brake accumulator
3 Brake linkage applied

– The hand brake without a push button needs to be moved beyond a ratchet point.

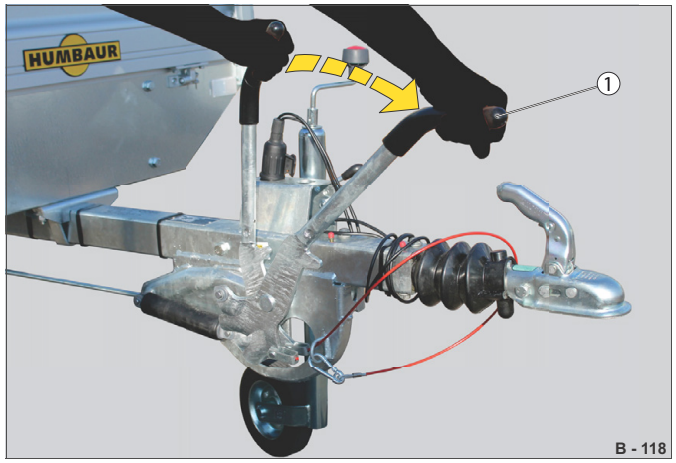


Fig. 87 Releasing hand brake

1 Hand brake lever at bottom

► Push the hand brake lever (Fig. 87 /1) beyond the ratchet point completely downwards towards the coupling.

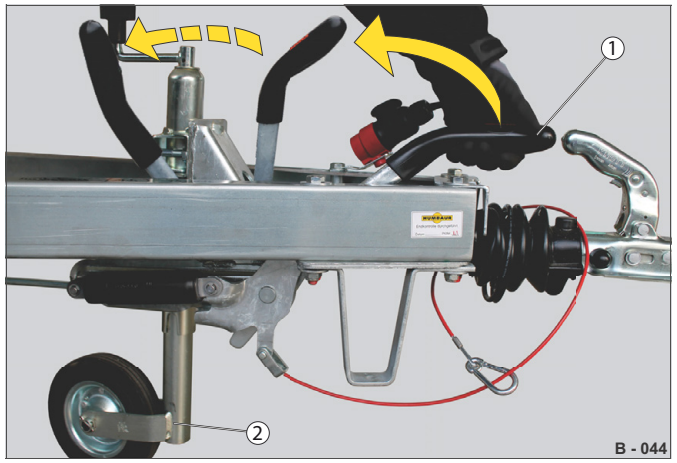


Fig. 88 Applying parking brake

1 Hand brake lever
2 Jockey wheel (in parking position)

► Wind down the jockey wheel (Fig. 88 /2) until it reaches the floor.

► Pull the hand brake lever (Fig. 88 /1) all the way up so that the brake is fully applied.

► Push the trailer back slightly.

The spring mechanism (Fig. 86 /2) fully applies the hand brake.

Hand brake with push button

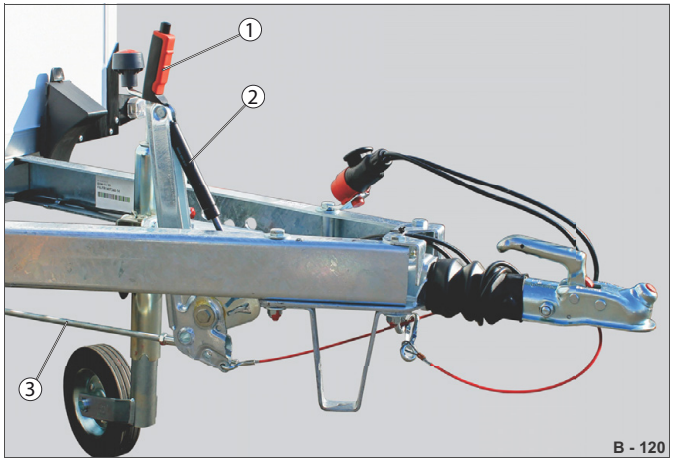


Fig. 89 Hand brake applied (made by ALKO)

1 Hand brake with push button at the top
2 Gas strut
3 Brake linkage

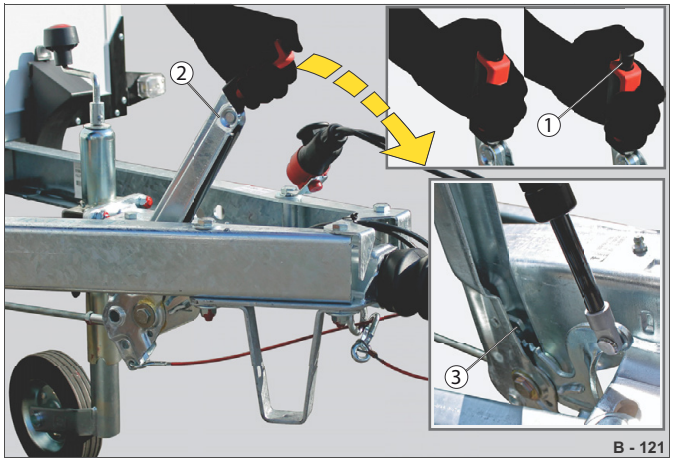


Fig. 90 Releasing hand brake

1 Pushbutton
2 Hand brake lever
3 Gearing / Locking system

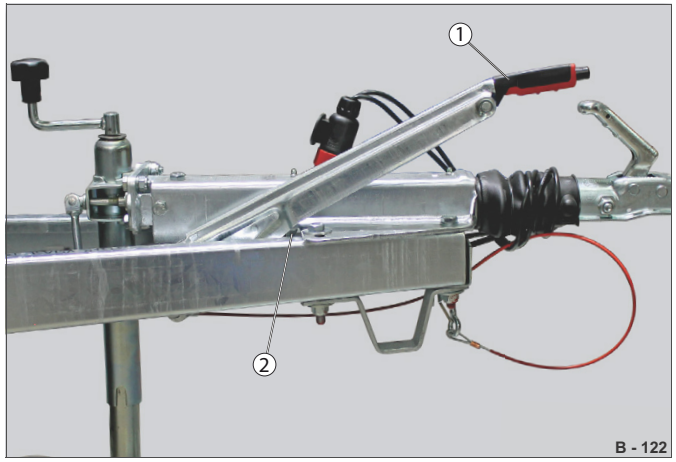


Fig. 91 Hand brake released

1 Hand brake lever at bottom
2 End stop towards overrun device

► Pull the hand brake lever (Fig. 90 /2) slightly upwards while at the same time pressing the release button (Fig. 90 /1).

► Guide the hand brake lever all the way down towards the coupling.

The gearing is released by the locking mechanism (Fig. 90 /3).

The hand brake lever (Fig. 91 /1) rests on the overrun device (Fig. 91 /2).

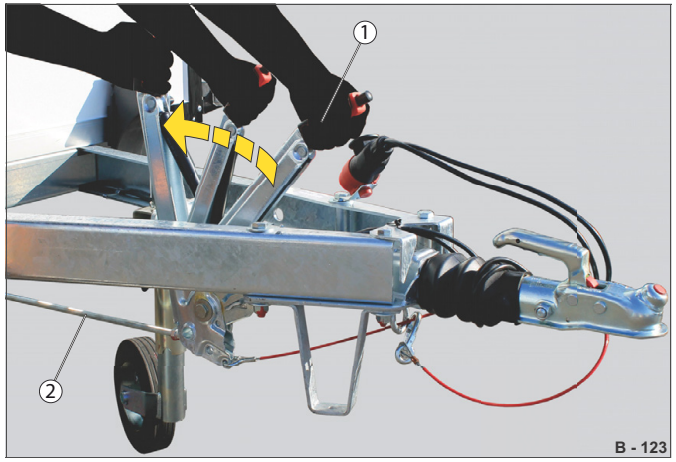


Fig. 92 Applying parking brake

1 Hand brake lever
2 Brake applied

► Pull the hand brake lever (Fig. 92 /1) as far up as possible so that the brake (Fig. 92 /2) is fully applied.

► Push the trailer back slightly.

The gas strut (Fig. 89 /2) fully applies the hand brake.

Drawbar support

Fig. 93 Trailer braked on drawbar support

1 Drawbar support
2 Ring (as guide for safety cable)
3 Safety cable

– The drawbar support is used to support the drawbar when parking your trailer.
– The drawbar support protects the overrun device and the coupling from damage if it were to fall down.

The safety cable must be fed through a guide, e.g. a ring (Fig. 93 /2).

Fig. 94 Trailer unbraked on drawbar support

1 Retention strap
2 Drawbar support
3 Jockey wheel, raised

CAUTION

Parking trailer on drawbar!
You could crush your feet / hands under the drawbar support.

► Use .

► Keep your feet away from the danger zone when lowering the drawbar.
► Carefully support your trailer on the drawbar support.

► Before parking it, make sure that the coupling is not damaged.

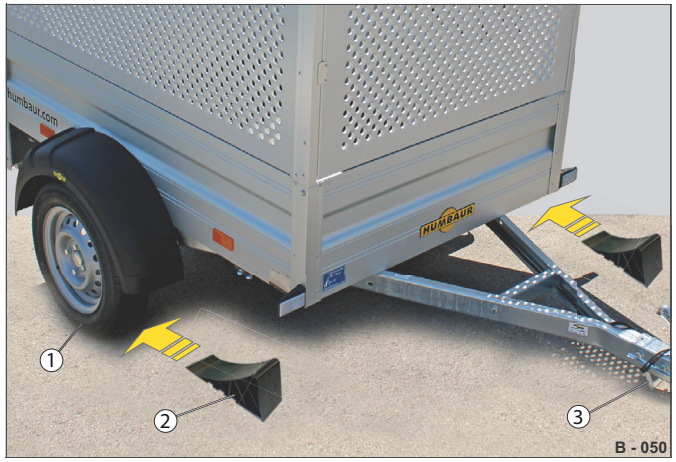


Fig. 95 Trailer parked

1 Tyres
2 Wheel chock
3 Drawbar support

► Use wheel chocks (Fig. 95 /2) to secure the trailer against rolling away - see page 60.

Long-term parking

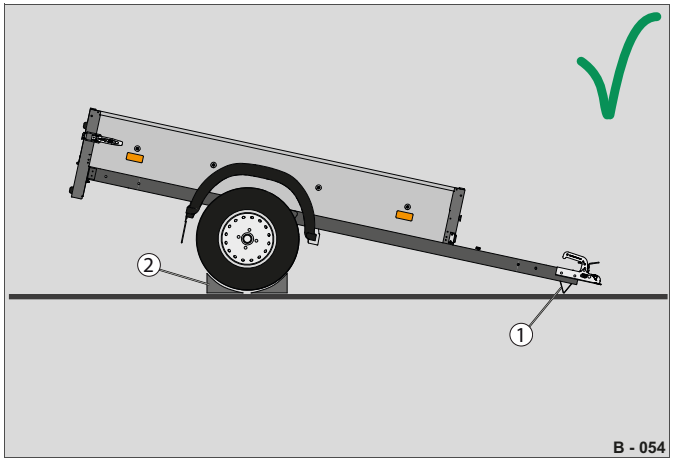


Fig. 96 Unbraked trailer

1 Drawbar support
2 Wheel chocks positioned

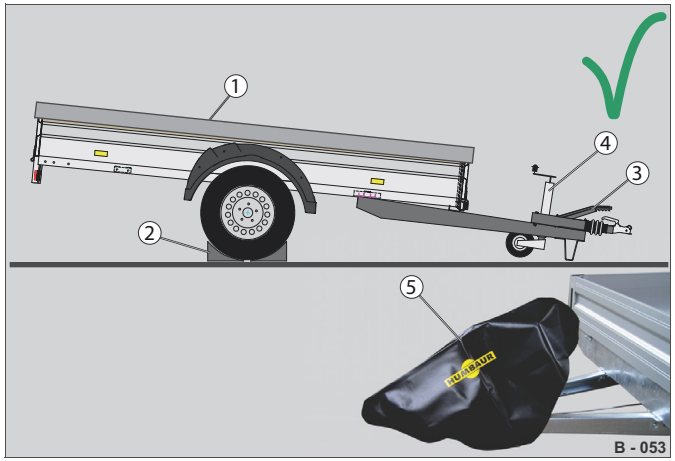


Fig. 97 Braked trailer

1 Tarpaulin (protects the cargo bed from getting waterlogged
2 Wheel chocks positioned
3 Hand brake released
4 Jockey wheel wound up / parked
5 Overrun device covered (cover hood)

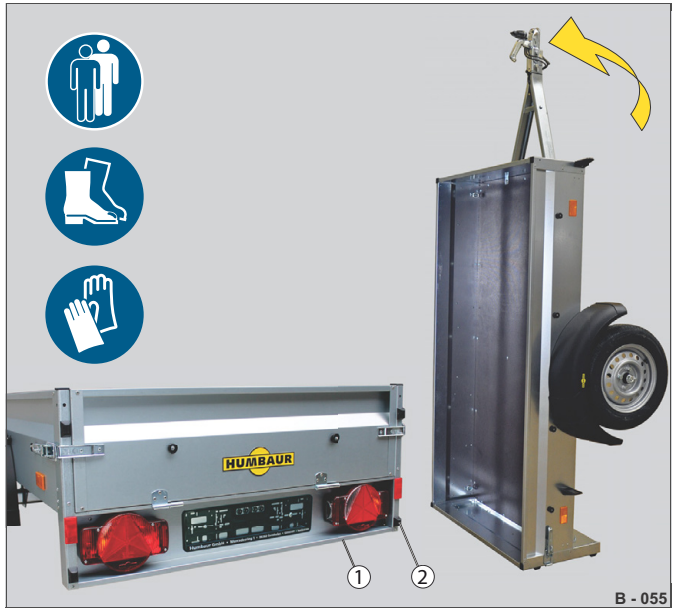


Fig. 98 Trailer: Park Steely up on end

1 Bottom edge
2 Rubber buffer

NOTICE

Trailer parked for a long time!

When parked for a long time on its own wheels, the tyres could become misshapen. If the brake is applied, the brake components could lock / freeze in place.

► Take the pressure off the tyres using suitable supports, e.g.:
- extend the supports,
- place trailer on drawbar supports,
- store trailer upright on end (e.g. for Steely)

► Release the handbrake.

► Place the wheel chocks under both sides of the wheels.

► If possible, move the trailer after a short period of time.

► If parked for a long time, park the trailer on the drawbar support (Fig. 96 /1).
- The inclined position helps prevent the cargo bed / roof becoming waterlogged or ice forming.

► Place the wheel chocks (Fig. 96 /2) under the wheels.

► Carefully wind the electric cable around the drawbar.

► Insert the electric plug into the parking socket.

► Protect the trailer from the weather by using a cover, e.g. tarpaulin (Fig. 97 /1) and cover hood (Fig. 97 /5).

► Occasionally remove any dirt or foreign bodies from the trailer, such as snow, ice, puddles, branches, etc.

CAUTION

Placing trailer up on end!

Unsecured trailers parked up on end can fall over and crush people.

► Secure the trailer against falling over, e.g. by tying it to the wall.

Single axle trailers e.g. Steely can be parked up on end (without fixing accessories).
The trailer may only be parked in private and secured areas.

► Park the trailer up on end on the rubber buffers (Fig. 98 /2).

► Secure the trailer against falling over - use a lashing strap to tie the trailer to a wall.

Parking trailers in the winter / in the frost / bad weather

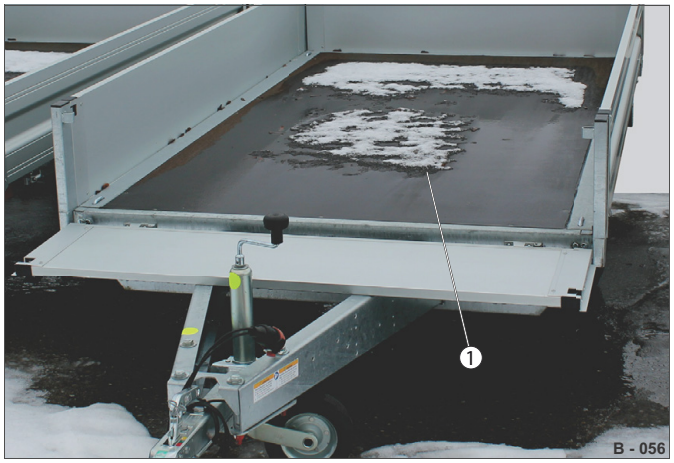


Fig. 99 Snow / ice on cargo bed

1 Cargo bed

In order to prevent the brake linings from sticking and freezing:

– Release the hand brake if parking for longer periods - especially in wet and cold weather conditions and frost.

– Secure the trailer with wheel chocks before releasing the brake.

– If parking the trailer for a long time, park it at an angle - this allows water to run off.

Fig. 100 Box body

1 Roof with snow / ice load

NOTICE

Snow / ice on the roof

The roof surface can be damaged if the snow / ice load is too high.

► Park the trailer tilted forwards, so that standing water and possible ice formation on the roof can be prevented.

► Use a stable access aid, e.g., a step ladder, when clearing the roof.

► Regularly clear the roof (Fig. 100 /1) / the cover tarpaulin (Fig. 101 /1) and the cargo bed (Fig. 99 /1) of any foreign bodies, or snow / ice / water load.

Fig. 101 Covered trailer

1 Tarpaulin
2 Water load

NOTICE

Cleaning the roof / cargo bed!

The roof / cargo bed / cover tarpaulin can be damaged / scratched if a snow shovel or scraper is used.

► Use a brush with soft bristles for example to clean the trailer.

► If necessary, use de-icer.

3 Operation: Trailer safety

Safety notices / legal

Attaching the arrester / safety cable incorrectly is dangerous and can result in fines in other countries!

It is necessary to secure the arrester / safety cable properly to the vehicle as it may save lives.
The Netherlands and Switzerland are the only countries in Europe which have a law on how to attach the safety cable. In both countries, “Wrapping the safety cable around the trailer coupling” is considered to be an offence. If this is checked by the police, this could lead to a significant fine.

State of technology:

The safety cable may not be laid in a loop over the trailer coupling. Where technically possible, it should be attached through a ring or an existing drilled hole in the coupling. Tow rings also provide a good place to attach it.

The snap hook on the safety cable is hooked into the pre-mounted ring on the body, thus securing the trailer.

Pay attention to the safety information and operating instructions from the manufacturer of the trailer coupling on the car.

The car coupling as a mechanical coupling device must be state of the art (Directive ECE-R55).

The manufacturers of brackets must include attachment points for secondary couplings (arrester / safety cable) or provide devices which ensure that the trailer comes to a standstill in the event that it comes uncoupled.

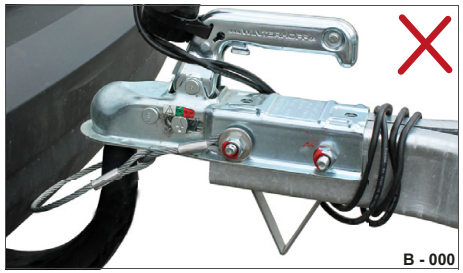
DANGER

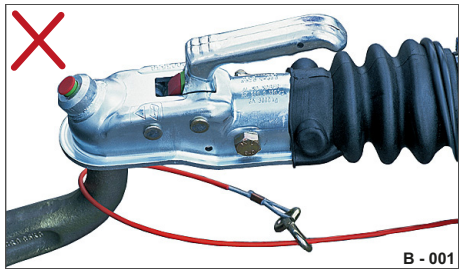
Driving with arrester / safety cable incorrectly attached!

The arrester / safety cable could detach from the ball head while driving.

If it came uncoupled, the trailer would be unsecured and can*t be braked - risk of accidents!

► Before setting off, check that the arrester / safety cable is correctly and securely hooked into or threaded through a fixed ring / drilled hole / mechanical device - tying a loop around the ball head is inadequate!





► If necessary, retrofit an additional attachment device for the arrester / safety cable if you have an older model coupling (according to Directive EEC 94/20).

Ball head couplings according to ECE-R55

Fig. 1 Example 1 (fixed coupling with ring on front)

Fig. 2 Example 2 (with 2 slots on the support arm)

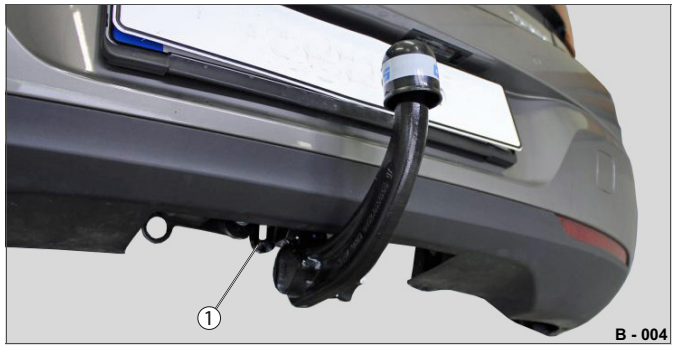


Fig. 3 Example 3 (removable coupling with ring on support)

1 Ring / drilled hole

Retrofitting a clamping device

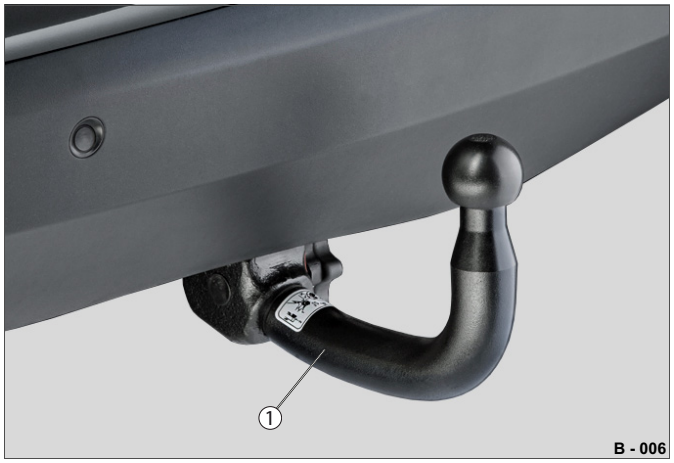


Fig. 4 Example: Coupling according to old directive

1 Coupling according to EEC 94/20

On older ball head couplings (According to EEC 94/20), there are no additional rings / drilled holes for holding the arrester / safety cable!

To meet today's technology standards and to avoid fines / penalties in other countries, we recommend retrofitting a suitable attachment device.

Fig. 5 Example: Clamping device on the coupling

1 Universal clamping device, at front

When mounting the universal clamping device, item 700.00986 (Fig. 5 /1), pay attention to the installation instructions!

- ► Before mounting the universal clamping device, make sure that there is sufficient space on the coupling.
- ► Check that the component can be securely clamped - there are several positioning variants.
- ► After installation, make sure that the required swivel range is available for the trailer coupling.
- ► Regularly check (at least 1x a year) and before going on long journeys, that the screw connection is tight (min. 45 Nm).

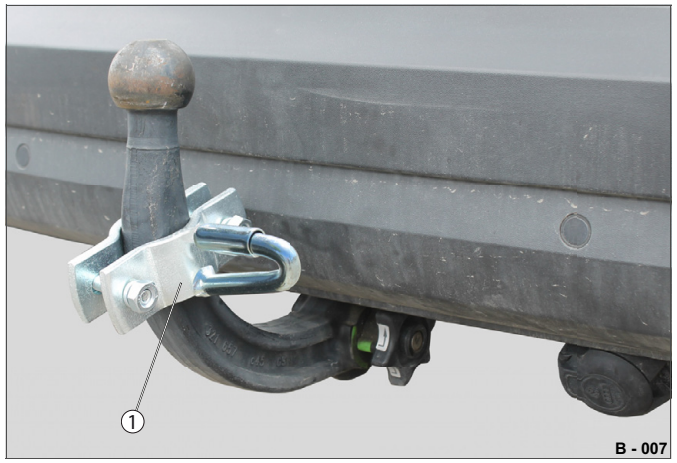


Fig. 6 Example: Clamping device on the coupling

1 Universal clamping device, on side

Fig. 7 Example: Clamping device on the coupling

1 Universal clamping device, at bottom

Securing elements

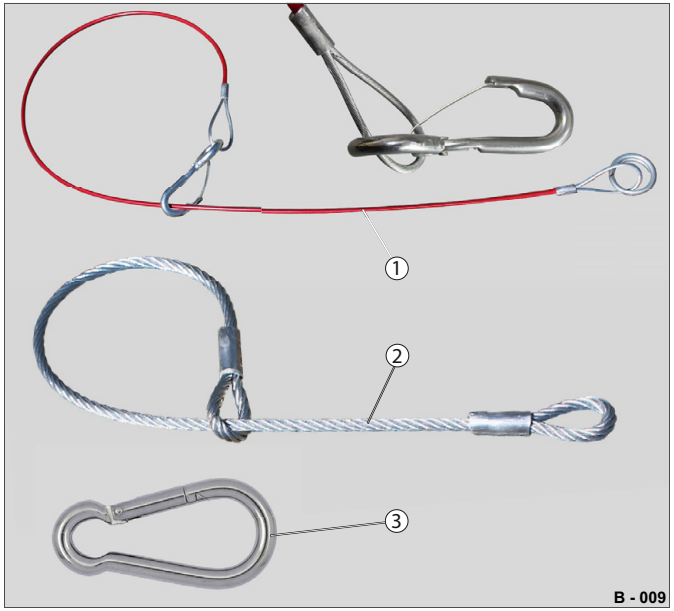


Fig. 8 Overview of securing elements

1 Safety cable with spring hook (on braked trailers)
2 Arrester cable (on unbraked trailers)
3 Spring hook according to DIN 5299 - Shape C (70 mm long / Ø 7 mm / load-bearing capacity 180 kg)

In the event of the trailer coming uncoupled / unhooked, the safety cable (Fig. 8 /1) will trigger automatic braking.

The arrester cable (Fig. 8 /2) prevents the trailer from coming uncoupled from the car coupling in the event of the trailer coupling disconnecting.

The snap hook (Fig. 8 /3) can also be used as an option. This must comply with DIN 5299 and must be size L=70 mm x Ø 7 mm.

Ball coupling (unbraked)

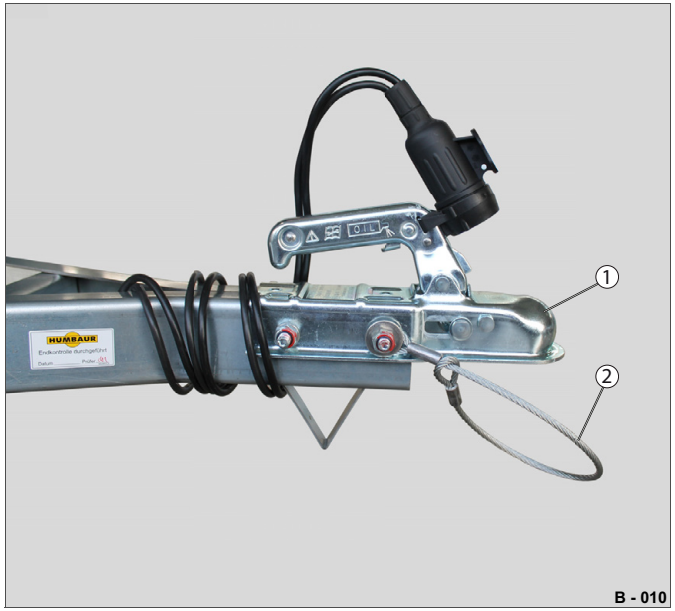


Fig. 9 Example: for unbraked trailer up to 750 kg GG

1 Ball coupling (in accordance with EEC 94/20 or ECE R-55)
2 Arrester cable, screwed on with loop

The arrester cable (Fig. 9 /2) is screwed onto the ball head coupling (Fig. 9 /1) as standard.

► When first connecting up the trailer, make sure that the arrester cable can easily be attached to your car coupling in a ring or a separate clamping device (Fig. 5).

► If necessary, attach a snap hook according to DIN 5299 to the arrester cable.

You can use the snap hook to clip the arrester cable directly onto the ring on the car coupling or the clamping device respectively.

Ball head coupling (braked)

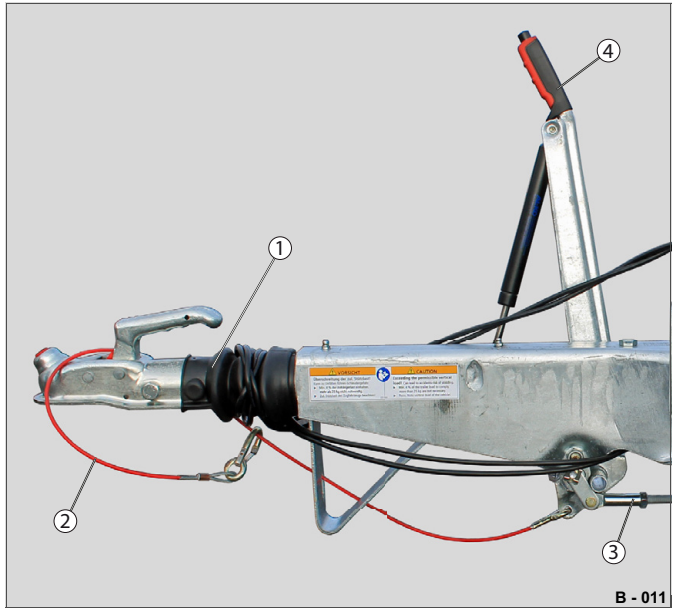


Fig. 10 Example: for unbraked trailer up to 3500 kg GG

1 Ball head coupling on overrun device
2 Safety cable, routed to hand brake system
3 Brake linkage
4 Hand brake lever

The safety cable (Fig. 10 /2) is routed to the brake linkage (Fig. 10 /3) and securely attached. The loop is formed using a spring hook or snap hook.

► When first connecting up the trailer, make sure that the safety cable can easily be attached to your car coupling in a ring or a separate clamping device (Fig. 5).

► If necessary, attach a snap hook according to DIN 5299 to the safety cable.

You can use the snap hook to clip the safety cable directly onto the ring on the car coupling or the clamping device respectively - see Section on page 74.

Securing trailer (unbraked)

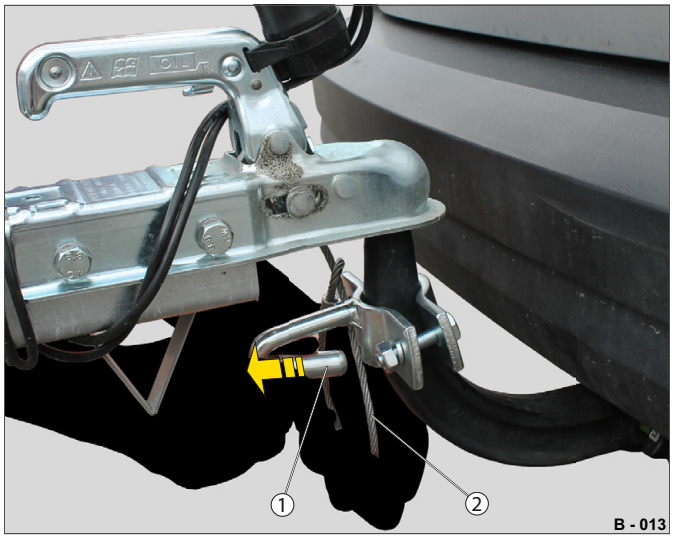


Fig. 11 Attaching arrester cable

1 Lock, spring-loaded
2 Arrester cable, threaded through

► Place the ball head coupling on the ball head of the car coupling - make sure that it is locked.

► Pull on the locking mechanism (Fig. 11 /1) of the clamping device while at the same time forming a loop with the arrester cable (Fig. 11 /2).

► Release the locking mechanism.

The arrester cable is inserted and secured.

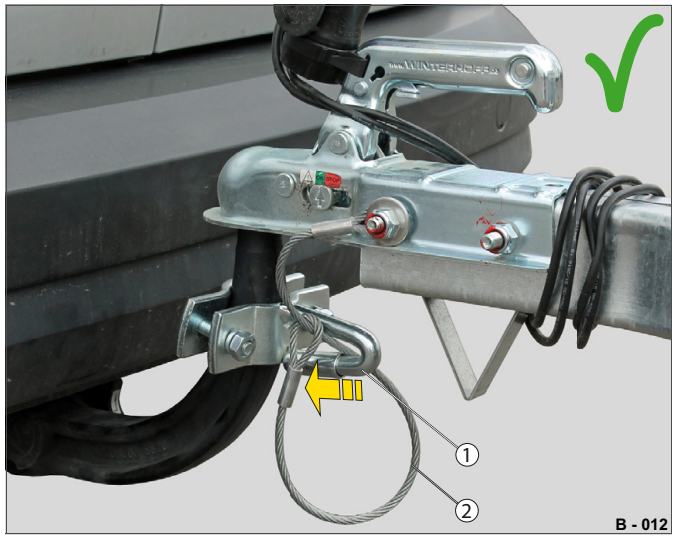


Fig. 12 Arrester cable secured

1 Hook, locked
2 Arrester cable, secured

► Check that the required swivel range for the ball head coupling is ensured.

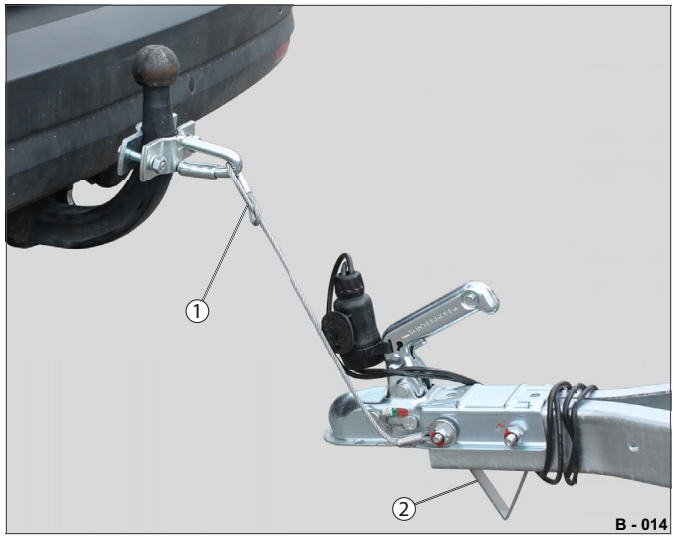


Fig. 13 Trailer uncoupled

1 Arrester cable, tensioned in loop
2 Support bracket

Accident simulation:

If the trailer become detached while driving, then it is caught by the arrester cable (Fig. 13 /1) so that the trailer can't roll away out of control.
The trailer is supported on the support bracket (Fig. 13 /2) and is dragged behind the car.

► Do not carry out an emergency stop as otherwise the trailer could wedge itself underneath the car.

► After an accident, check the arrester cable, ball head coupling, electric plug, clamping device, etc. for damage and replace any faulty components.

► If necessary, take the trailer to a testing facility for vehicles and have it thoroughly inspected.

Securing trailer (braked)

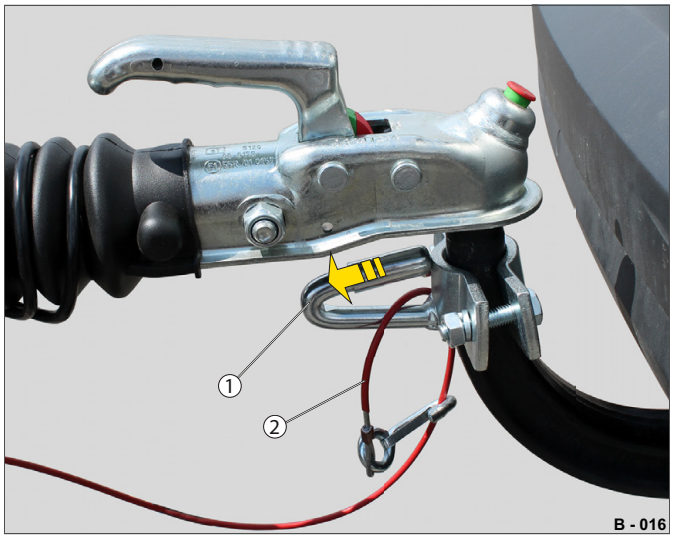


Fig. 14 Attaching safety cable

1 Lock, spring-loaded
2 Safety cable with spring hook, threaded through

► Place the ball head coupling on the ball head of the car coupling - make sure that it is locked.
► Pull on the locking mechanism (Fig. 14 /1) of the clamping device while at the same time forming a loop with the safety cable (Fig. 14 /2).
► Release the locking mechanism.

The safety cable is inserted and secured.

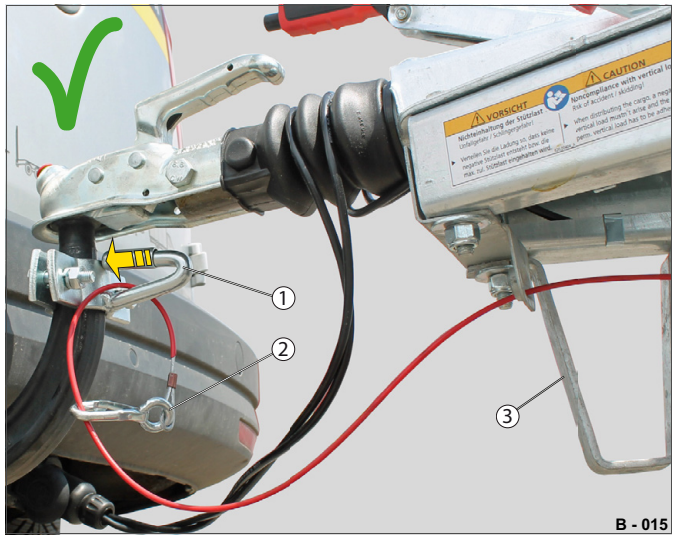


Fig. 15 Safety cable secured

1 Hook, locked
2 Safety cable with spring hook, secured
3 Support bracket

► Check that the required swivel range for the ball head coupling is ensured.
► Ensure that the spring hook (Fig. 15 /2) is closed.

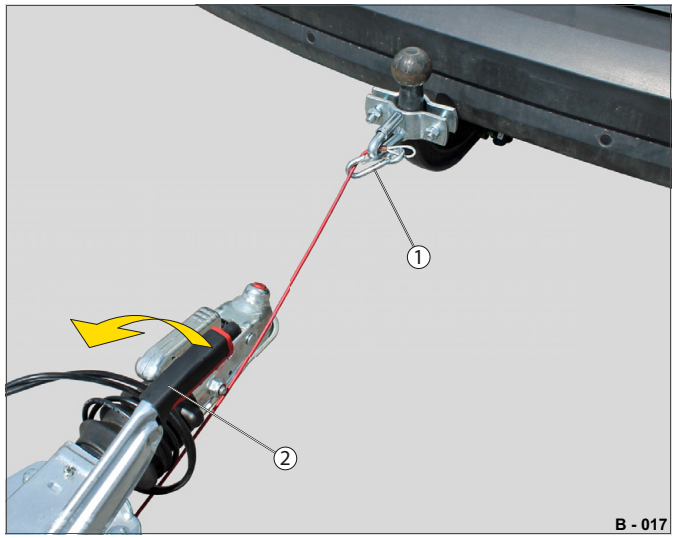


Fig. 16 Trailer uncoupled

1 Safety cable, tensioned in loop
2 Hand brake, is applied

Accident simulation:

If the trailer become detached while driving, then it is braked by the hand brake (Fig. 16 /2) being applied by the safety cable (Fig. 16 /1) so that the trailer can‘t roll away out of control.
The safety cable breaks, the brake is actuated, the trailer supports itself on the support bracket (Fig. 15 /3) and comes to a standstill.

► Do not carry out an emergency stop as otherwise the trailer could wedge itself underneath the car.
► After an accident, check the ball head coupling, electric plug, clamping device, etc. for damage and replace any faulty components.
► Replace the safety cable.
► If necessary, take the trailer to a testing facility for vehicles and have it thoroughly inspected.

Securing trailer (braked) - with snap hook

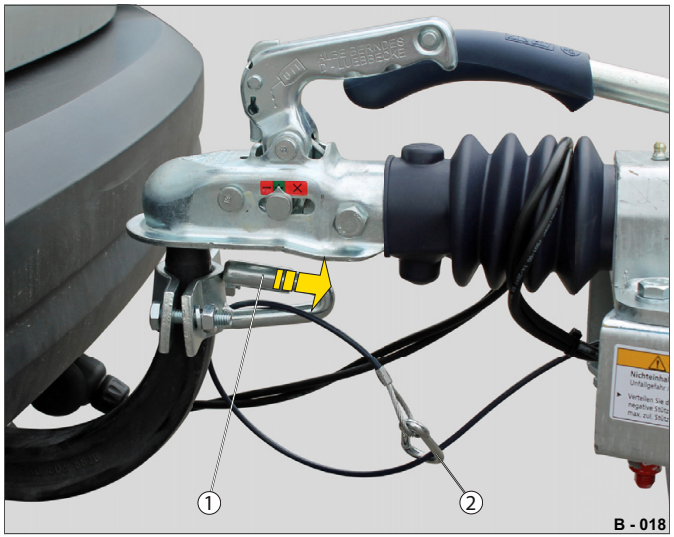


Fig. 17 Attaching safety cable

1 Lock, spring-loaded
2 Safety cable with snap hook

► Place the ball head coupling on the ball head of the car coupling - make sure that it is locked.

► Pull on the locking mechanism (Fig. 17 /1) of the clamping device while at the same time forming a loop with the safety cable (Fig. 17 /2).

► Release the locking mechanism.

The safety cable is inserted and secured.

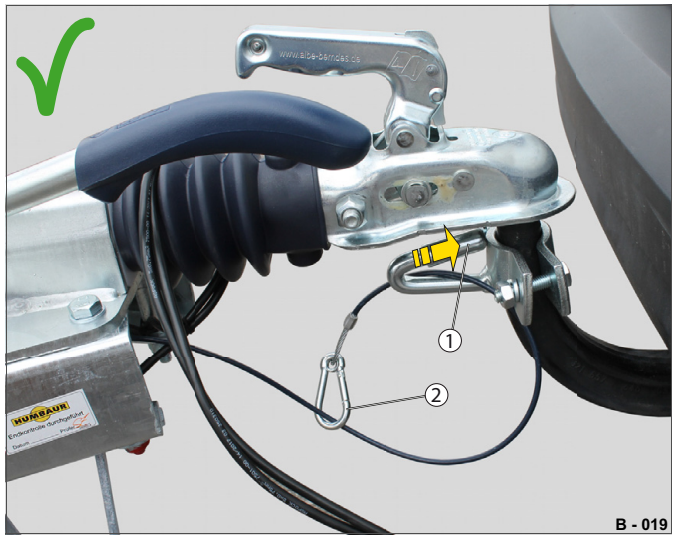


Fig. 18 Safety cable secured

1 Hook, locked
2 Safety cable with spring hook, secured

► Check that the required swivel range for the ball head coupling is ensured.

► Make sure that the spring hook (Fig. 18 /2) is closed.

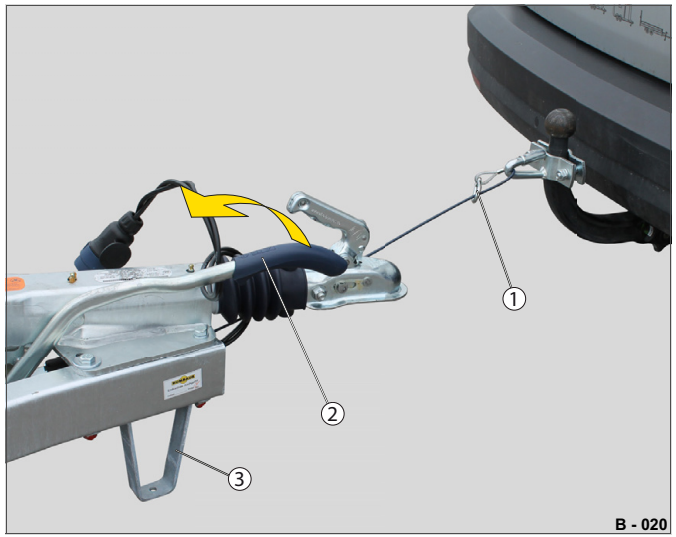


Fig. 19 Trailer uncoupled

1 Safety cable, tensioned in loop
2 Hand brake, is applied
3 Support bracket

Accident simulation:

If the trailer become detached while driving, then it is braked by the hand brake (Fig. 19 /2) being applied by the safety cable (Fig. 19 /1) so that the trailer can‘t roll away out of control.
The safety cable breaks, the brake is actuated, the trailer supports itself on the support bracket (Fig. 19 /3) and comes to a standstill.

► Do not carry out an emergency stop as otherwise the trailer could wedge itself underneath the car.

► After an accident, check the ball head coupling, electric plug, clamping device, etc. for damage and replace any faulty components.

► Replace the safety cable.

► If necessary, take the trailer to a testing facility for vehicles and have it thoroughly inspected.

Securing with snap hook (according to DIN 5299) - directly

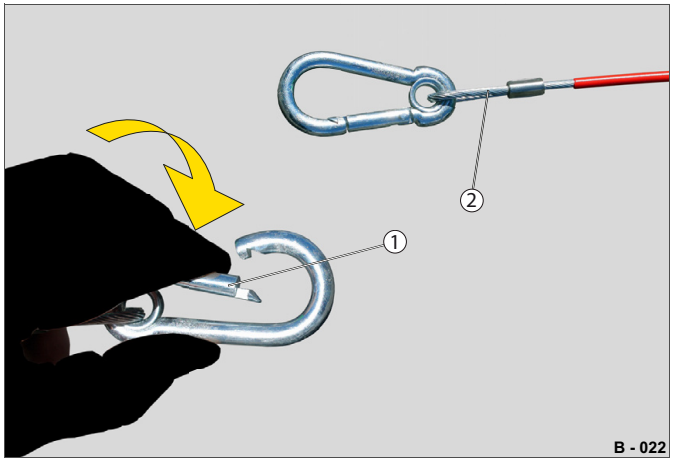


Fig. 20 Safety cable with snap hook

1 Snap fastener
2 Safety cable

The snap hook must comply with DIN 5299.

The minimum size is: 70 mm long Ø 7 mm (shape C / load-bearing capacity 180 kg).

Only this design of snap hook may be attached directly to the car coupling on the car.

Smaller snap hooks may only be hooked into the safety cable!

Pay attention to the operating instructions for your car coupling.

Recommendation:

Make sure that the ring on the coupling is capable of absorbing the forces in the event of the trailer coming uncoupled.

If necessary, ask the manufacturer of the car coupling to confirm this.

Fig. 21 Example: Safety cable attached with snap hook

1 Ball trailer coupling
2 Ring on the front
3 Snap hook, attached

► Press in the snap fastener (Fig. 20 /1) on the snap hook.

► Hook the snap hook (Fig. 21 /3) onto the ring (Fig. 21 / 2).

The snap fastener closes automatically once it has been released. The snap hook is closed.

► Make sure that the safety cable is not dragging on the ground.

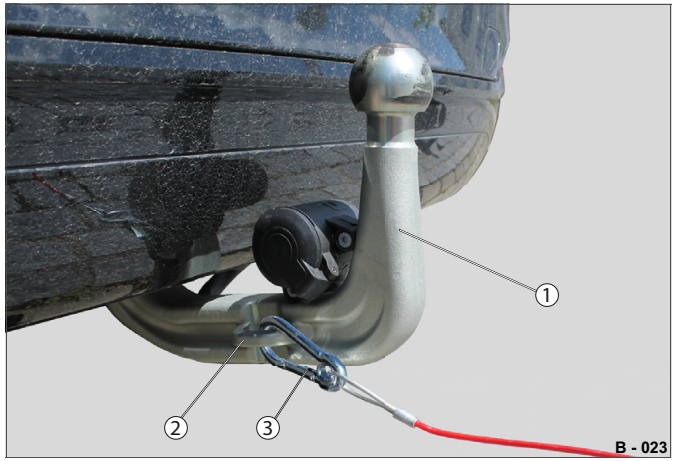


Fig. 22 Example: Safety cable attached with snap hook

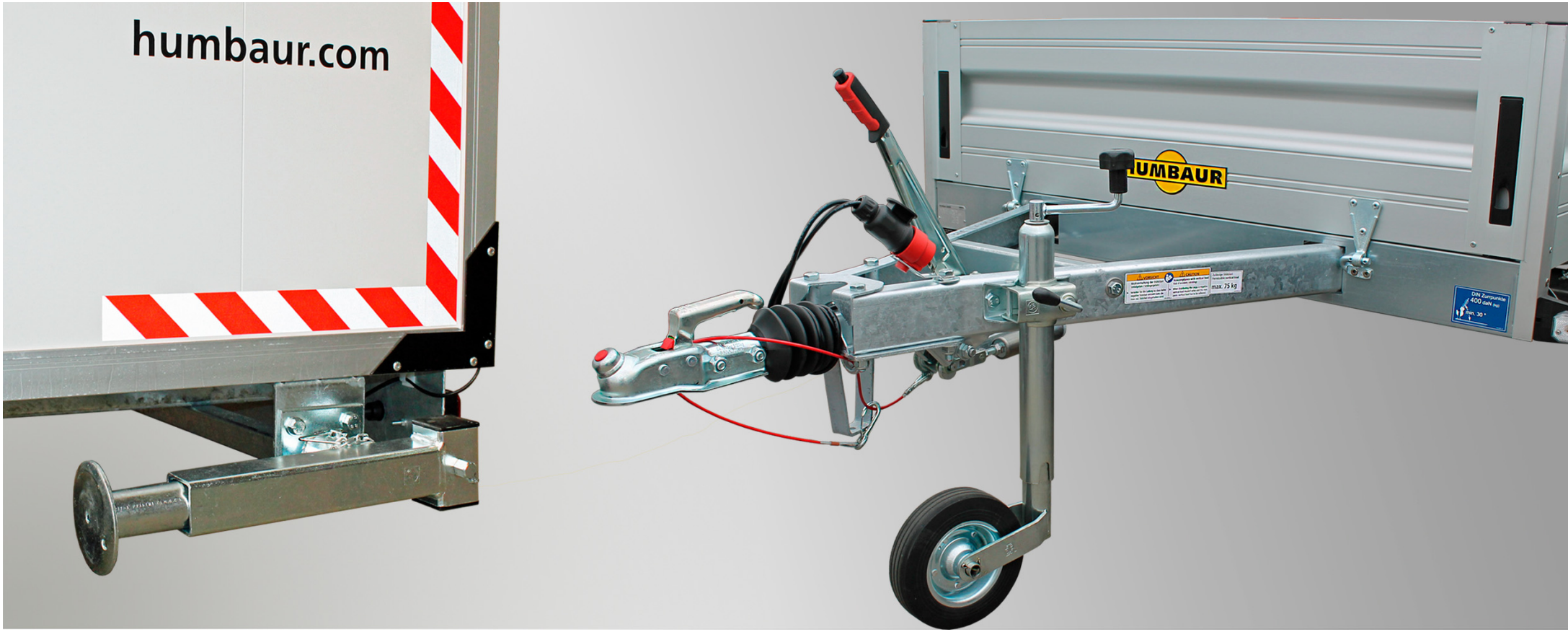
1 Ball trailer coupling
2 Ring, on side
3 Snap hook, attached

► Press in the snap fastener (Fig. 20 /1) on the snap hook.

► Hook the snap hook (Fig. 22 /3) onto the ring (Fig. 22 / 2).

The snap fastener closes automatically once it has been released. The snap hook is closed.

► Make sure that the safety cable is not dragging on the ground.



4 Chassis

Jockey wheel

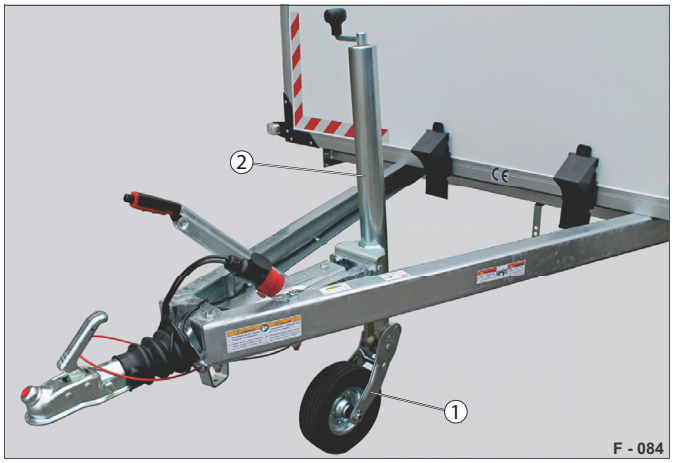


Fig. 1 Automatic jockey wheel (firmly attached)

1 Jockey wheel
2 Cylinder

Jockey wheel

– Supporting the drawbar when parking / manoeuvring.
– At a support load > 50 kg, a jockey wheel is installed.
– Various jockey wheels: Weight load
Standard to raise, automatic jockey wheel, jockey wheel with pivot bearing.

Automatic jockey wheel

– Wheel which can be automatically folded in and out (Fig. 1 /1).
– Raising and lowering the cylinder (Fig. 1 /2) is not required.

Swivel jockey wheel

– Attached to the side of the drawbar.
– Can be pivoted horizontally, e.g. for load-through function.

Retrospective installation only in designated attachment points.

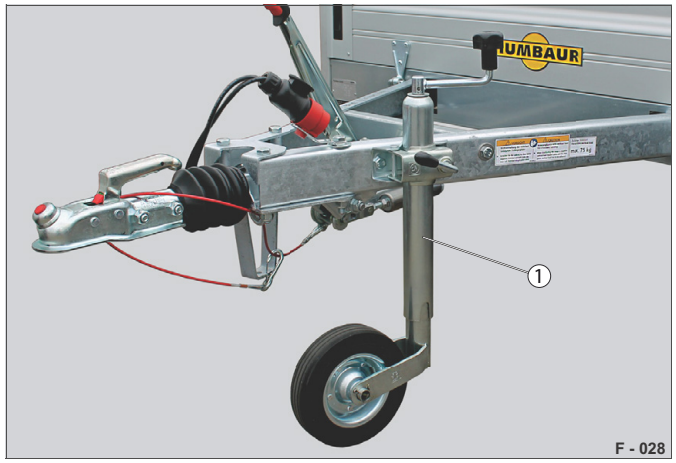


Fig. 2 Jockey wheel manual (to raise)

1 Jockey wheel (on side of drawbar)

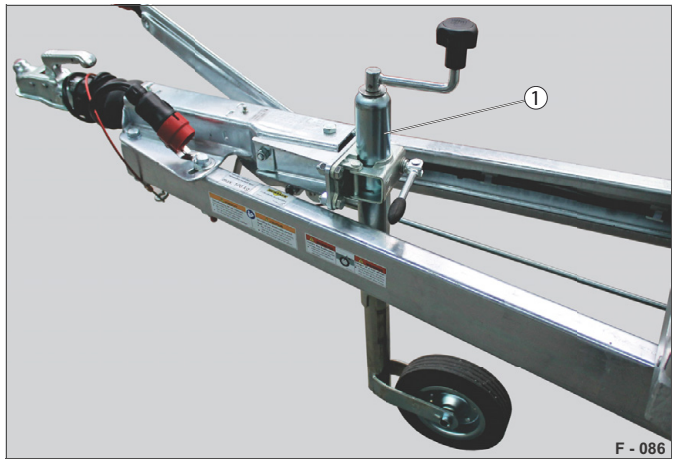


Fig. 3 Jockey wheel manual (to raise)

1 Jockey wheel (in centre)

Read and observe the assembly instructions.

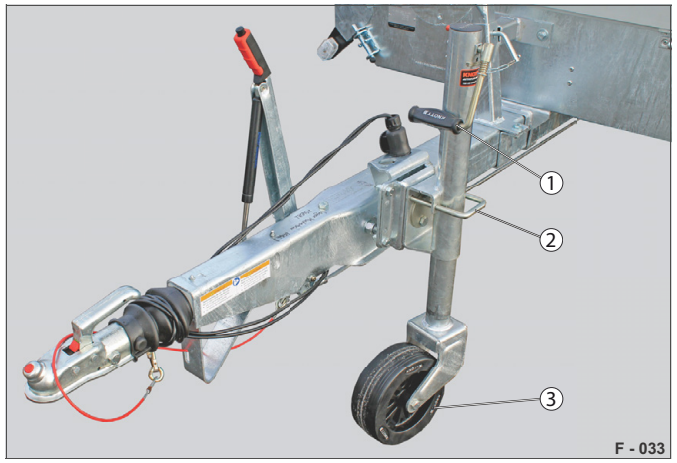


Fig. 4 Example: Jockey wheel (pivoting)

1 Crank handle (fold in)
2 Screw clamp retainer
3 Jockey wheel (fixed)

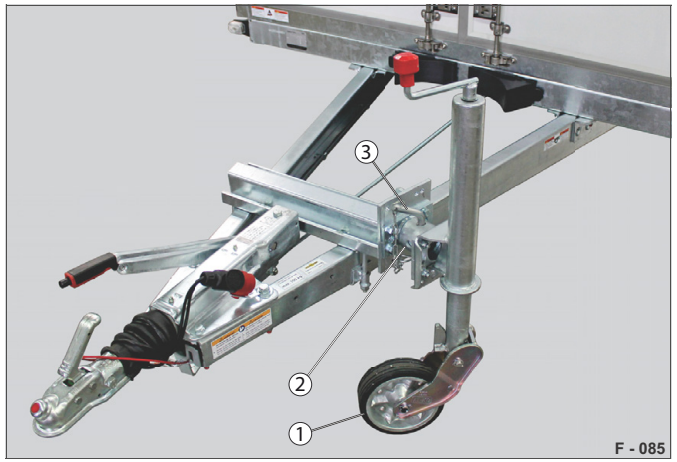


Fig. 5 Example: Automatic jockey wheel (pivoting)

1 Jockey wheel (fold-in)
2 Pivot bearing
3 Pin locking

Jockey wheel in centre

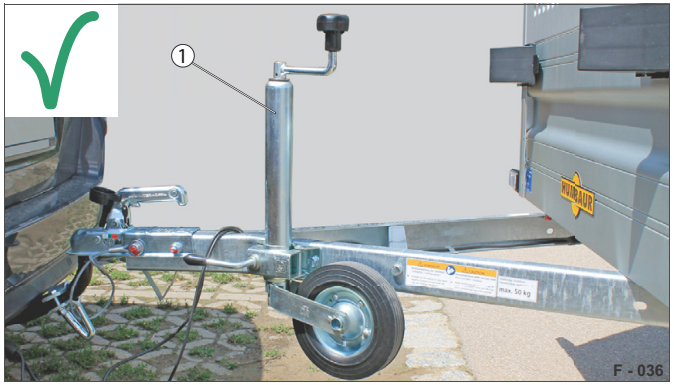


Fig. 6 Jockey wheel (in driving position) correct

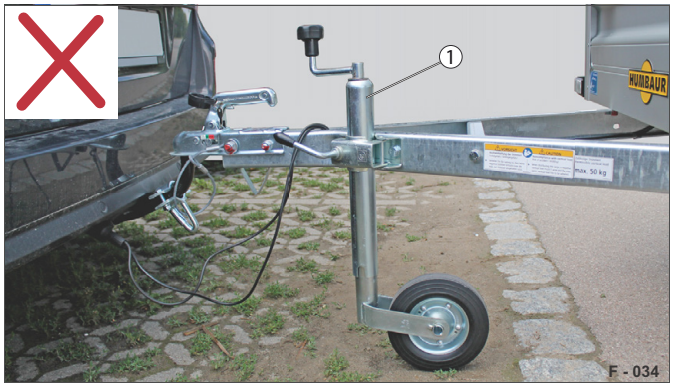


Fig. 7 Jockey wheel (in support position) incorrect

1 Jockey wheel

WARNING

Jockey wheel not cranked up / raised before setting off!

The jockey wheel could be ripped off while driving and catapulted away.

- ► Raise /crank up the jockey wheel up fully before driving off (see Fig. 6).
- ► Secure the jockey wheel with clamp.
- ► Check that the jockey wheel is securely positioned.

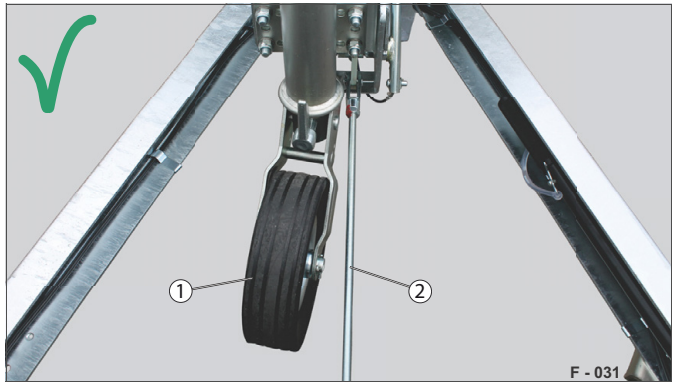


Fig. 8 Jockey wheel positioned correctly

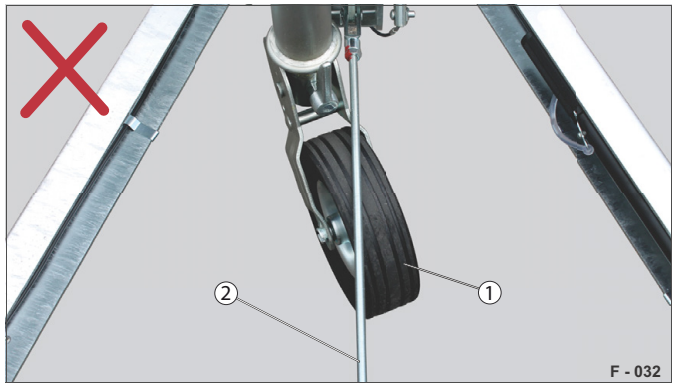


Fig. 9 Jockey wheel positioned incorrectly

1 Jockey wheel
2 Brake linkage

WARNING

Jockey wheel blocking brake linkage / has been positioned incorrectly!

Incorrectly positioned jockey wheel can block the brakes while driving - risk of accidents!

- ► Before setting off, make sure that the jockey wheel does not block the brake linkage.

CAUTION

Cranking up / raising the jockey wheel when the trailer is uncoupled!

Drawbar could fall down and you can crush your hands / feet under the drawbar.

- ► Only crank up / raise the jockey wheel when the trailer is coupled to towing vehicle.
- ►  Keep your feet away from the drawbar when cranking it up or raising it.

CAUTION

Operating the jockey wheel!

You could crush your hands / fingers between the drawbar and jockey wheel when operating it.

- ► Keep your fingers away from the crush area.
- ► Use  .

CAUTION

Manoeuvring a loaded trailer with the jockey wheel lowered!

The max. load of the support wheel is exceeded.
The support device could break and the trailer could tip forwards.

- ► Only manoeuvre the trailer when it is empty.
- ► Do not drive over any obstacles, such as stones, curbs, etc.
- ► Do not manoeuvre over long distances.
- ► Use  ,  .

Standard jockey wheel

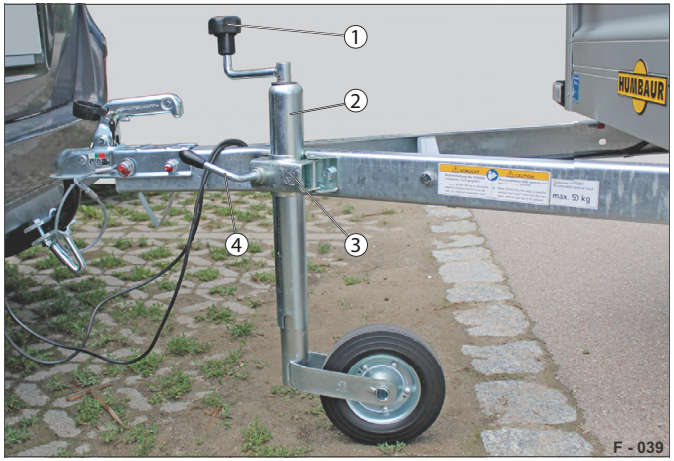


Fig. 10 Support position

1 Crank handle
2 Cylinder
3 Clamp / attachment console
4 T-handle

NOTICE

Loading an uncoupled trailer with the jockey wheel lowered.

The clamping effect of the clamp cannot hold the weight.

The cylinder slips through the clamp.

The trailer tips forward - risk of jockey wheel / attachment console breaking!

► Couple the trailer to the towing vehicle before loading it.

Lowering / cranking down

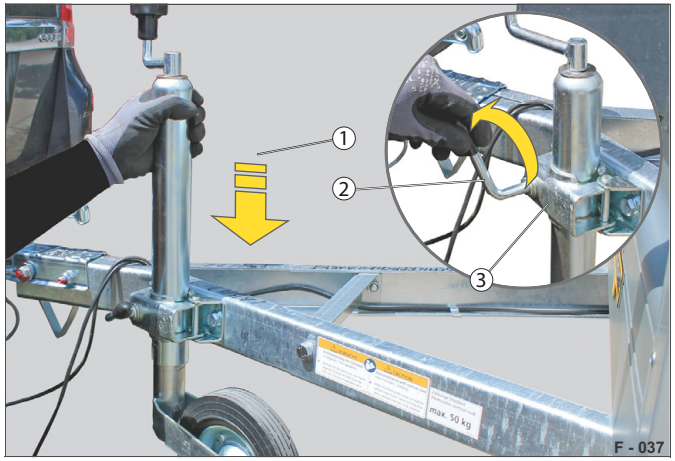


Fig. 11 Lowering jockey wheel

1 Cylinder
2 T-handle
3 Clamp

► Unscrew the T-handle (Fig. 11 /2) while holding the cylinder (Fig. 11 /1) tight.

► Lower the cylinder so that the clamp (Fig. 11 /3) can be locked in place.

► Turn the T-handle until it is tight.

Cranking up / raising

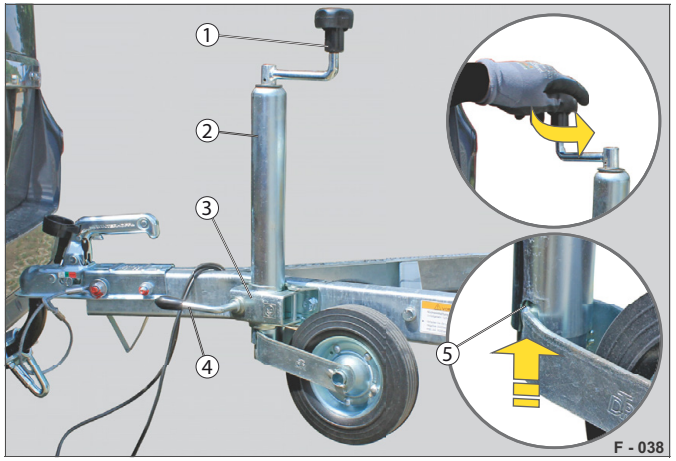


Fig. 12 Position for driving

1 Crank handle
2 Cylinder
3 Clamp
4 T-handle
5 Rotation lock

► Crank the jockey wheel all the way up so that the hub of the rotation lock (Fig. 12 /5) is inserted into the groove on the cylinder (Fig. 12 /2).

► Unscrew the T-handle (Fig. 12 /4) and pull the cylinder up.

► Position the jockey wheel so that the brake linkage is not blocked (on jockey wheel mounted in the middle).

► Turn the T-handle until it is tight.

► Check that the clamp (Fig. 12 /3) is tightly clamping the cylinder.

Automatic jockey wheel

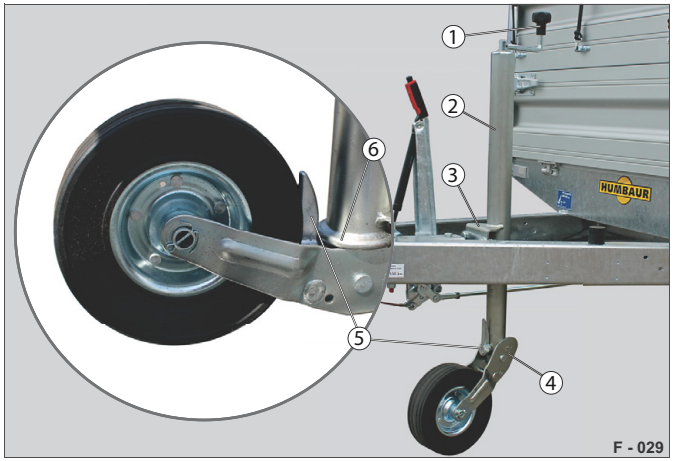


Fig. 13 Support position

1 Crank handle
2 Cylinder
3 Fastening bracket
4 Swivel wheel bracket
5 Locking slide
6 Bottom end stop

When cranking up the automatic jockey wheel, the locking slide (Fig. 13 /5) moves up onto the bottom end stop (Fig. 13 /6).

The automatic jockey wheel automatically folds up.

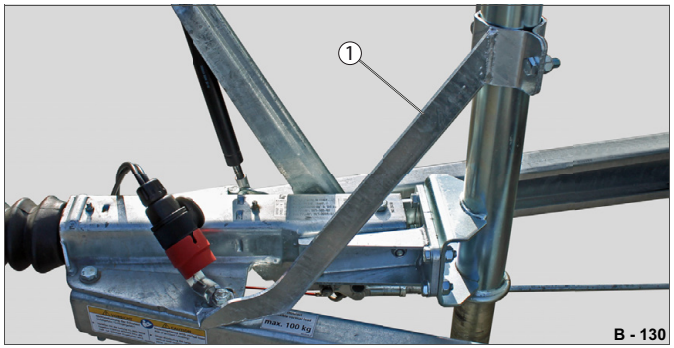


Fig. 14 Reinforcement jockey wheel (optional)

1 Strut (galvanised steel)

Winding down

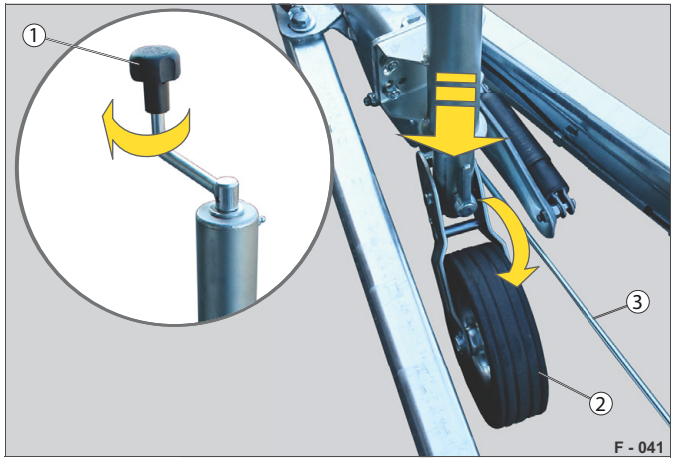


Fig. 15 Crank down jockey wheel

1 Crank handle
2 Automatic jockey wheel
3 Brake linkage

► Crank the automatic jockey wheel (Fig. 15 /2) sideways past the brake linkage (Fig. 15 /3) down to the ground.

The jockey wheel is completely folded out and locked in place (see Fig. 13).

Winding up

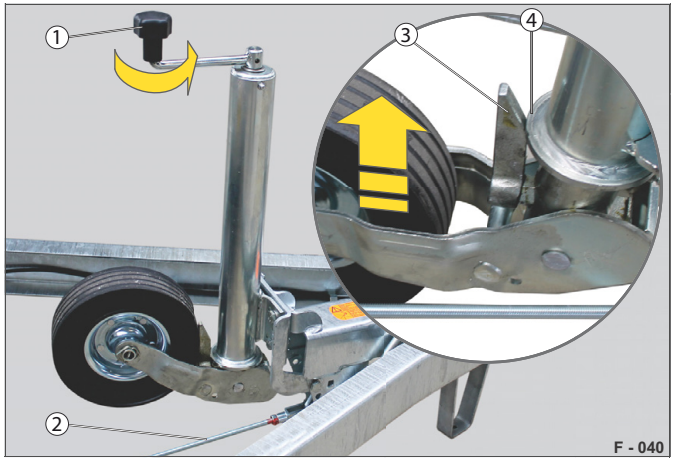


Fig. 16 Position for driving

1 Crank handle
2 Brake linkage
3 Locking slide
4 End stop

► Crank the automatic jockey wheel up.

Make sure that the brake linkage (Fig. 16 /2) is not blocked.
The automatic jockey wheel is pointing towards the cargo bed (see Fig. 16).

The locking slide (Fig. 16 /3) slides onto the end stop (Fig. 16 /4).

The jockey wheel automatically stops in driving position.

Jockey wheel, pivoting

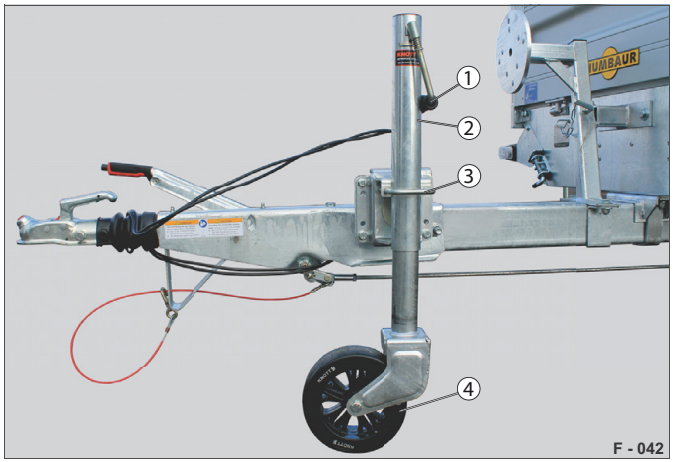


Fig. 17 Support position

1 Crank handle
2 Cylinder
3 Attachment console with locking latch
4 Jockey wheel

The pivoting jockey wheel (Fig. 17 /4) can be operated quickly thanks to the spring-loaded locking latch (Fig. 17 /3).

The fold-in crank (Fig. 17 /1) prevents unauthorised operation, e.g. by children.

Pivoting in driving position

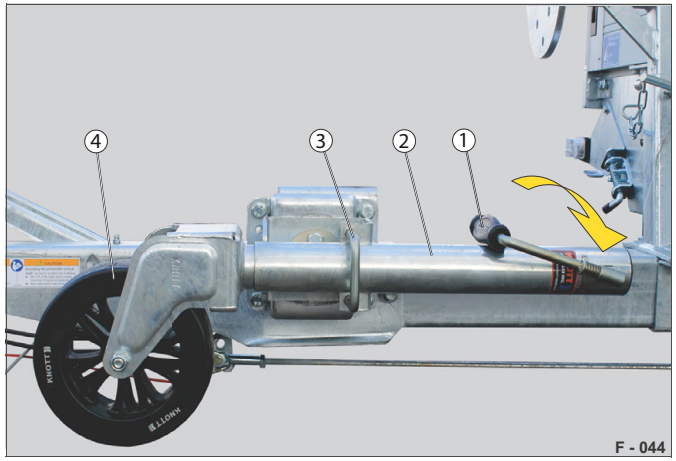


Fig. 18 Jockey wheel in driving position

1 Crank handle
2 Cylinder
3 Bracket
4 Jockey wheel

► Crank the jockey wheel (Fig. 18 /4) up.
► Position the crank (Fig. 18 /1) into folded in position.
► Pull on the latch (Fig. 18 /3) while pivoting the jockey wheel into a horizontal position.
The jockey wheel is aligned in parallel to the draw tube.

Pivoting into support position

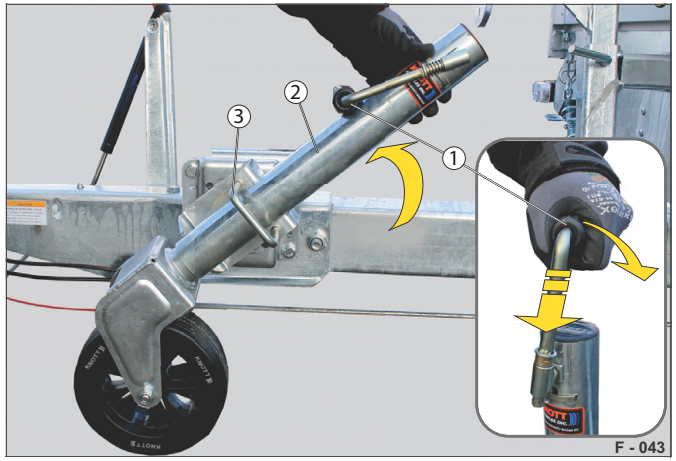


Fig. 19 Operating the jockey wheel

1 Crank handle
2 Cylinder
3 Bracket

► Pull on the bracket (Fig. 19 /3) while pivoting the cylinder (Fig. 19 /2) in a vertical position - until it clicks into place.
► Press the crank (Fig. 19 /1) against the spring and fold it out.
► Wind the jockey wheel down.
The jockey wheel is in support position - see (Fig. 17).

Supports

– Supports are used to support your trailer when loading and unloading as well as when parking.
– From a load-capacity point of view, supports are not designed to lift a trailer.
– Supports protect your trailer from damage caused when loading and unloading.
– There are many different types of support available, depending on the load to be supported and operation of the supports.
– Variants:
Prop stands, telescopic crank supports,
Folding supports, corner legs

Only carry out retrospective installation in designated attachment points.

Read and observe the assembly instructions.

CAUTION

Operating the supports!

It is possible to crush your feet / hands under the supports between the chassis and the supports.

► Use  .

►  When lowering the supports, keep your feet out of the danger zone.

WARNING

Supports not in driving position before setting off!

Supports could come loose or be ripped away when driving along.

► Before setting off, ensure the supports are in driving position.

► Secure the supports against falling down.

WARNING

Parking the trailer with supports on uneven / soft ground!

If on a slope, the supports could sink in/ break off while loading / unloading.

► Place the trailer on solid, level ground.

► If the ground is soft, (e.g. gravel, sand), place firm supports under the support legs.

WARNING

Loss of stability when driving onto the trailer!

A redistribution of weight caused by driving onto the trailer or uneven ground can cause the trailer to sink on one side. The trailer could tip over and the load could slip off.

► Lower the support legs before loading / unloading.

NOTICE

Overloading the support legs when loading!

The support legs have been lowered all the way to the ground and are bearing the entire weight of the trailer and the load. The support legs can be damaged.

► When loading, only lower the support legs until there is 4-6 cm clearance from the ground.

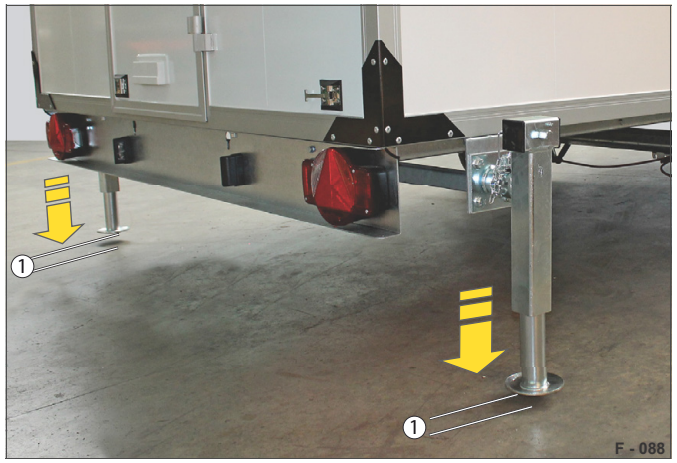


Fig. 20 Support for loading

1 Clearance / gap

The trailer suspension gives slightly when loaded and is stabilised by the support legs.

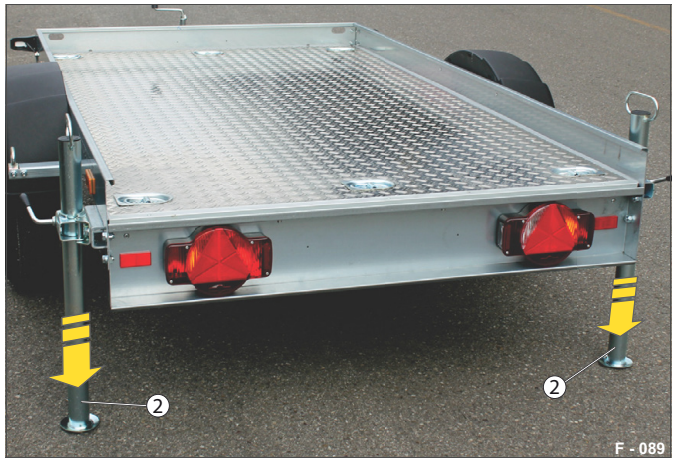


Fig. 21 Support for unloading

2 Ground

The suspension on the trailer has given slightly under the load and is stabilised by the supports. When unloading, the weight is taken off the supports.

Distance from ground

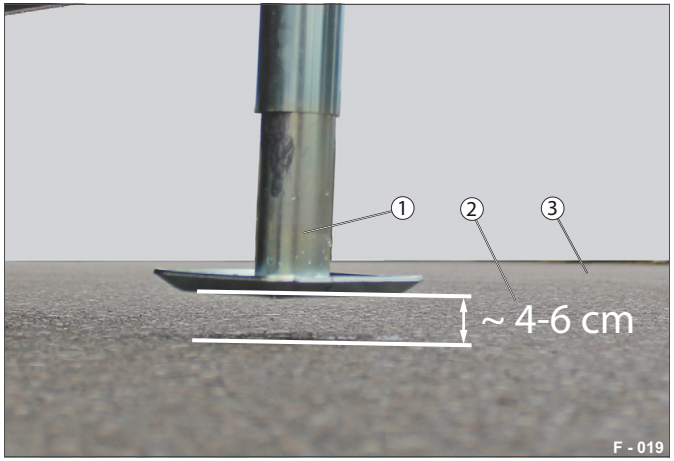


Fig. 22 Air gap when loading

1 Support leg
2 Air gap
3 Ground

Valid for variants:

– Prop stands
– Telescopic crank supports
– Folding supports

Lowering for loading

► Lower the support legs so that an air gap (Fig. 22 /2) of **~ 4-6 cm** remains between the ground (Fig. 22 /3) and support leg (Fig. 22 /1).

Lowering for unloading

► Lower the support legs right down to the ground.

Height adjustment, telescopic crank supports

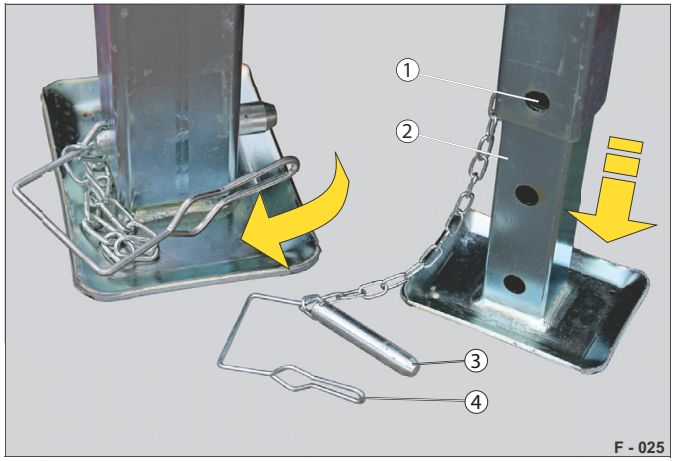


Fig. 23 Telescopic crank supports, height-adjustable

1 Hole
2 Adjustable support
3 Plug pins
4 Bracket lock

Lengthening

► Press the bracket lock (Fig. 23 /4) out of the plug pin (Fig. 23 /3).
► Adjust the adjustable support (Fig. 23 /2) downwards so that it can be locked in place in a drill hole (Fig. 23 /1). If necessary, crank up the support legs slightly.
► Insert the plug pins and secure with the bracket lock.

Shortening

► Unlock the adjustable support.
► Adjust the adjustable support all the way up so that it can be locked in place in the last drill hole.
► Insert the plug pins and secure with the bracket lock.

Height adjustment folding supports

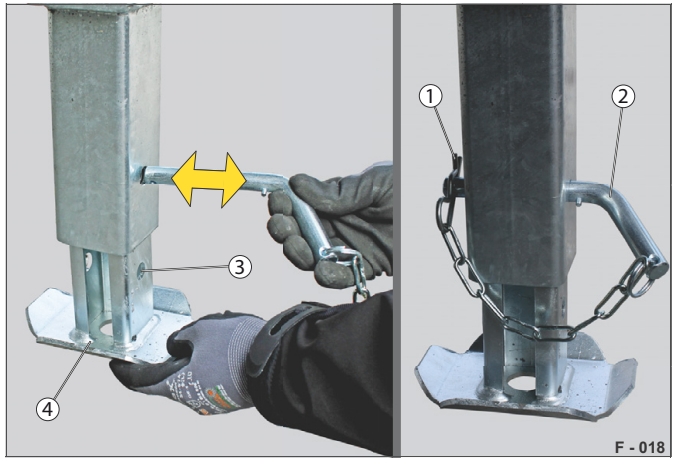


Fig. 24 Folding supports, height adjustment

1 R-clip
2 Plug pins
3 Hole
4 Adjustable support

Lengthening

► Pull the R-clip (Fig. 24 /1) from the plug pin (Fig. 24 /2).
► Adjust the adjustable support (Fig. 24 /4) downwards so that it can be locked in place in a drill hole (Fig. 24 /3). If necessary, crank up the support legs slightly.
► Insert the plug pin and secure it with the R-clip.

Shortening

► Unlock the adjustable support.
► Adjust the adjustable support all the way up so that it can be locked in place in the last drill hole.
► Insert the plug pin and secure it with the R-clip.

Prop stands

Fig. 25 Prop stands (support position)

1 Handle
2 Prop stand
3 Attachment console (clamps)
4 T-handle

– These are operated without tools.

– Max. support load per prop stand is ~ 100 kg.

Read and observe the assembly instructions.

⚠ CAUTION

Weakly tightened T-handle!

During loading/unloading, the prop stand can slide down and your trailer may tip!

► Before loading/unloading, check that the T-handle is tightened.

Lowering

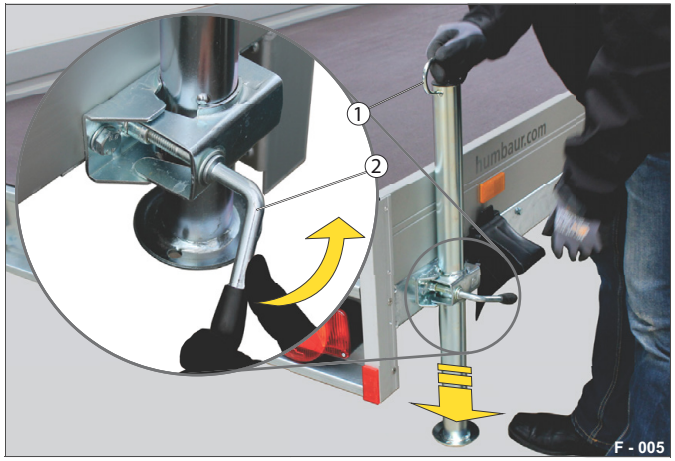


Fig. 26 Lowering prop stands

1 Prop stand
2 T-handle

► Unscrew the T-handle (Fig. 26 /2). While doing so hold the prop stand (Fig. 26 /1) on the handle.

► Lower the prop stands.

► Turn the T-handle until it is tight.

Raising

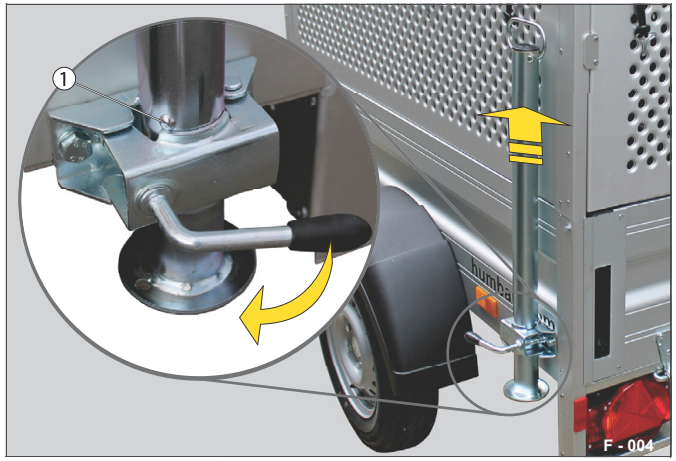


Fig. 27 Raising (driving position)

1 Weld spot

► Unscrew the T-handle (Fig. 26 /2).

► Hold the handle and pull up the prop stand (Fig. 26 /1). The weld spot (Fig. 27 /1) should be at the edge of the clamp.

► Turn the T-handle until it is tight.

Telescopic crank supports

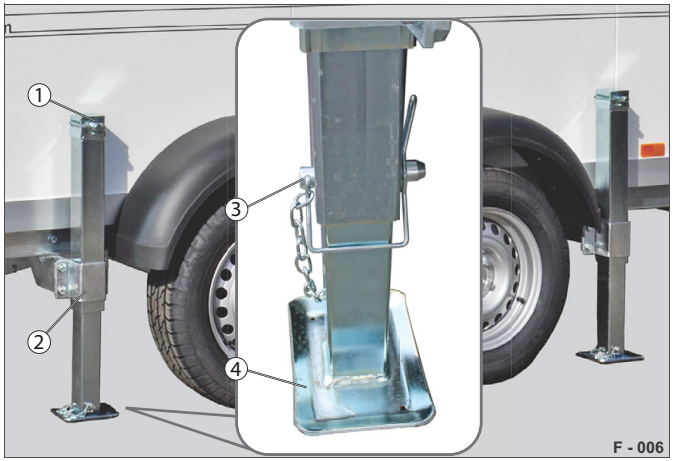


Fig. 28 Support position, secured

1 Crank handle base
2 Plug pin with bracket lock
3 Adjustable support

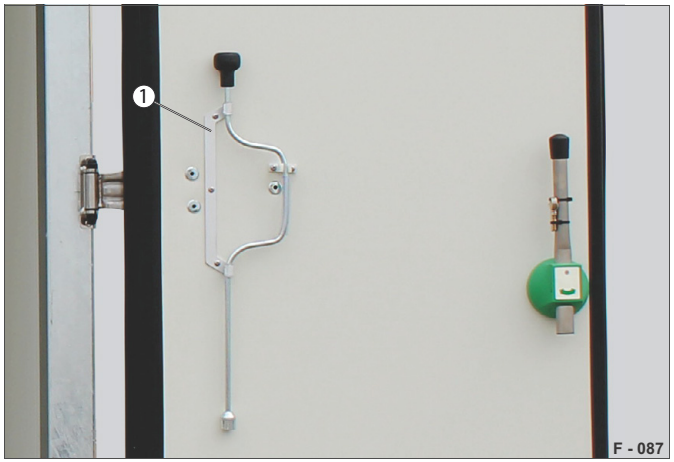


Fig. 29 Crank handle, secured

1 Crank handle holder (optional)

– It is operated with the hand crank.
– Stable support for long-term parking.
– Taking the weight off the parked trailer with a load.

Lowering

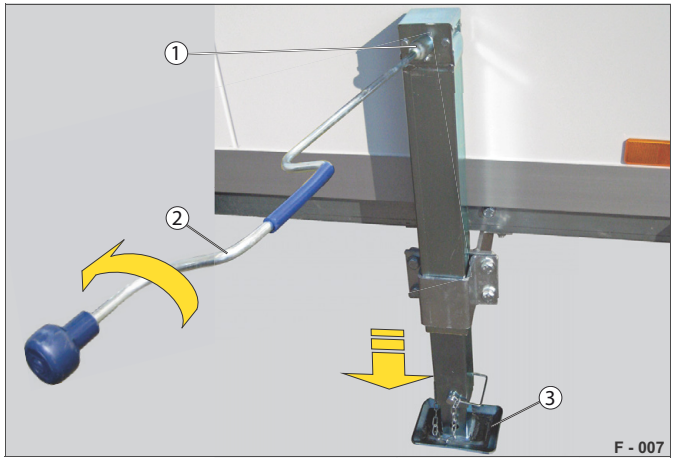


Fig. 30 Crank down the telescopic crank support

1 Crank handle base
2 Crank handle
3 Adjustable support

NOTICE

Raise the trailer using supports!

The supports could be overloaded during operation which could lead to the mechanics becoming faulty.

► Do not raise the trailer with supports.

► Remove the crank handle from the crank handle holder (Fig. 29 /1).
► Insert the crank handle (Fig. 30 /2) into the crank base (Fig. 30 /1).
► Wind until the adjustable support (Fig. 30 /3) reaches the ground.

Raising

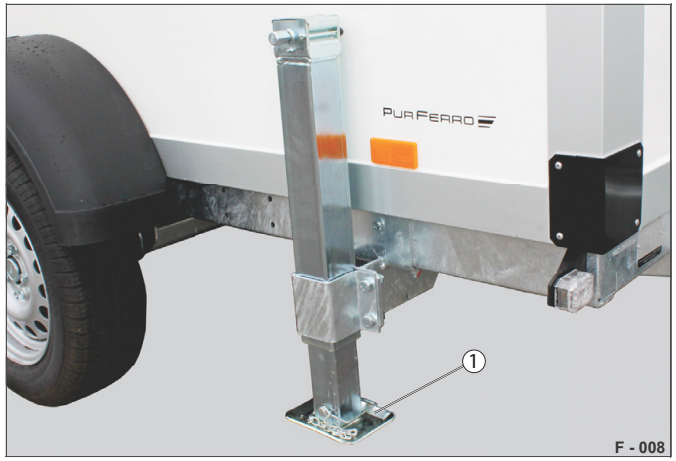


Fig. 31 Position for driving

1 Adjustable support

NOTICE

Uneven support of the trailer!

Uneven support of the trailer can put a one-sided load on the supports and could damage the trailer.

► Wind the supports down evenly.
► Avoid the trailer being at an angle.

► Wind up the adjustable support (Fig. 31 /1) to the full extent.
► Stow the crank handle and secure it.

Switchable telescopic crank supports

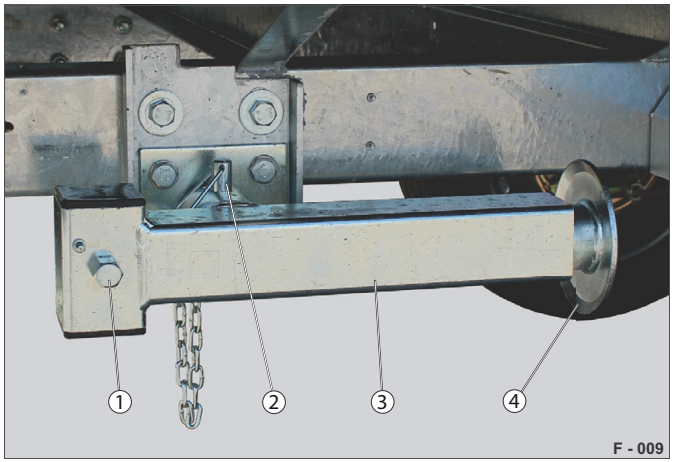


Fig. 32 Telescopic crank supports, driving position

1 Crank handle base
2 Plug pins
3 Stand body
4 Adjustable support

– It is operated with the hand crank.
– Stable support of the trailer.
– Taking the weight off the parked trailer with a load.
– Stabilisation of tipper trailers during loading / unloading process.

Lowering

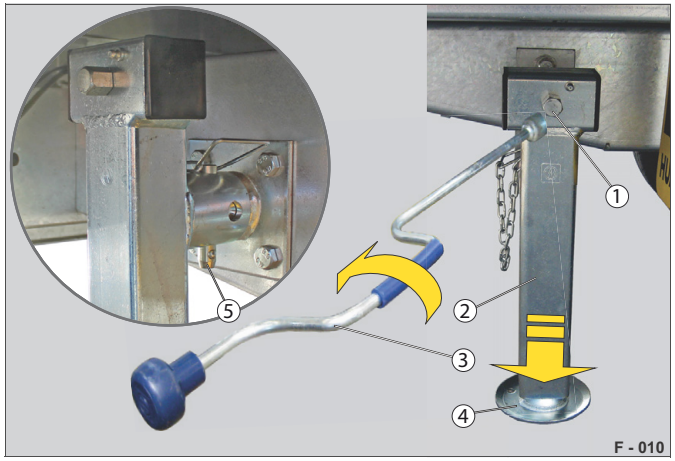


Fig. 33 Telescopic crank supports, support position

1 Crank handle base
2 Support
3 Crank handle
4 Adjustable support
5 Plug pins

► Pull out the plug pin (Fig. 33 /5).
► Swivel down the support (Fig. 33 /2).
► Insert the plug pin in from above.
► Insert the crank handle (Fig. 33 /3) into the crank base (Fig. 33 /1).
► Wind down the adjustable support (Fig. 33 /4).
► Stow the crank handle and secure it.

Swivelling up

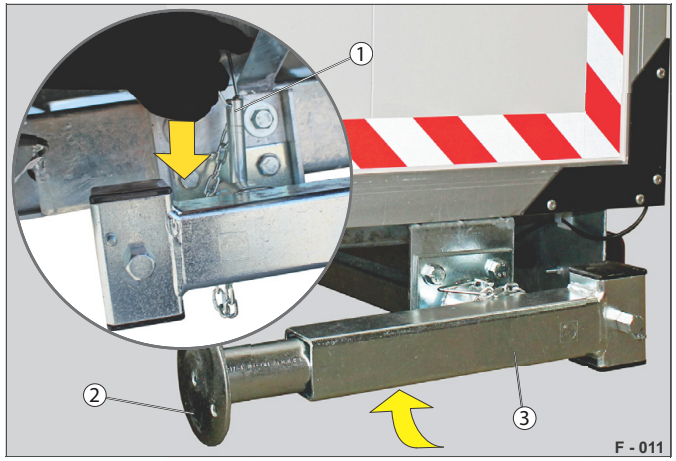


Fig. 34 Swivelling up support

1 Plug pins
2 Adjustable support
3 Support

► Wind up the adjustable support (Fig. 34 /2) all the way up
with the crank handle (Fig. 33 /3).
► Pull out the plug pin (Fig. 34 /1).
► Slowly swivel the support (Fig. 34 /3) up.
► Insert the plug pin in from above.

Telescopic crank supports which are switchable with a crank handle

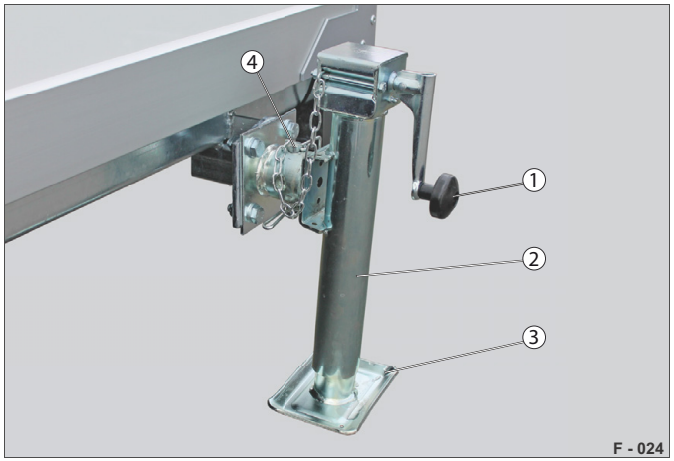


Fig. 35 Telescopic crank support with crank handle, support position

1 Crank handle
2 Support
3 Adjustable support
4 Plug pins

– It is operated with permanently attached hand crank handle.
– No loose hand crank handle is required.

Lowering

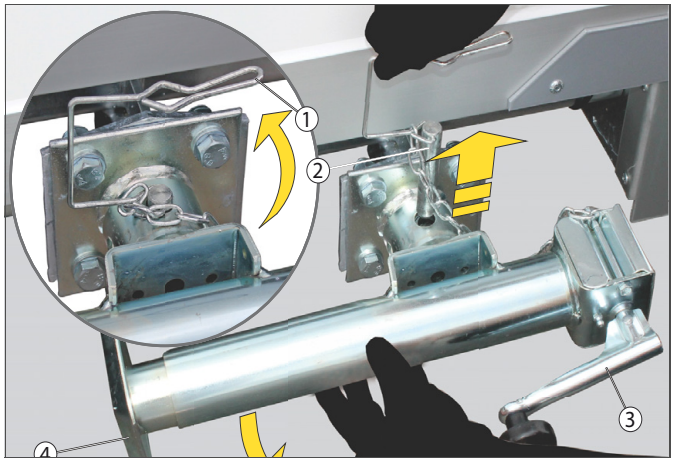


Fig. 36 releasing / lowering

1 Bracket lock
2 Plug pins
3 Crank handle
4 Adjustable support

► Press the bracket lock (Fig. 36 /1) out of the plug pin.
► Pull out the plug pin (Fig. 36 /2).
► Swivel down the support (Fig. 35 /2).
► Insert the plug pins in from above and secure with the bracket lock.
► Wind down the adjustable support (Fig. 36 /4).

Swivelling up

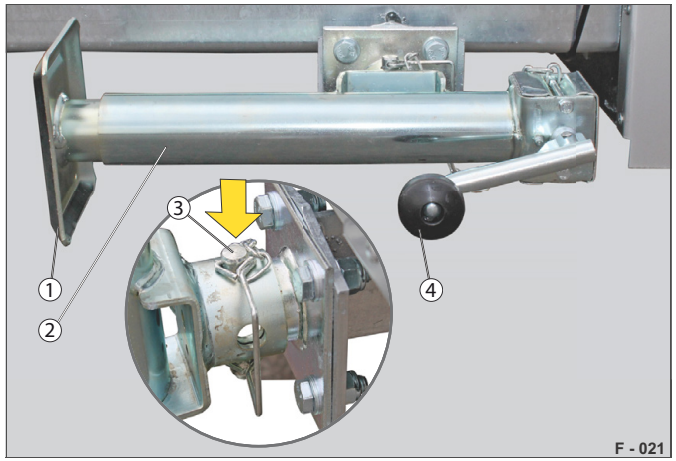


Fig. 37 Position for driving

1 Adjustable support
2 Support
3 Plug pins
4 Crank handle

► Wind up the adjustable support (Fig. 37 /1) all the way up
with the crank handle (Fig. 37 /4).
► Pull out the plug pin (Fig. 37 /3).
► Slowly swivel the support (Fig. 37 /2) up.
► Insert the plug pins in from above and secure with the bracket lock.

Corner legs (scissor struts)

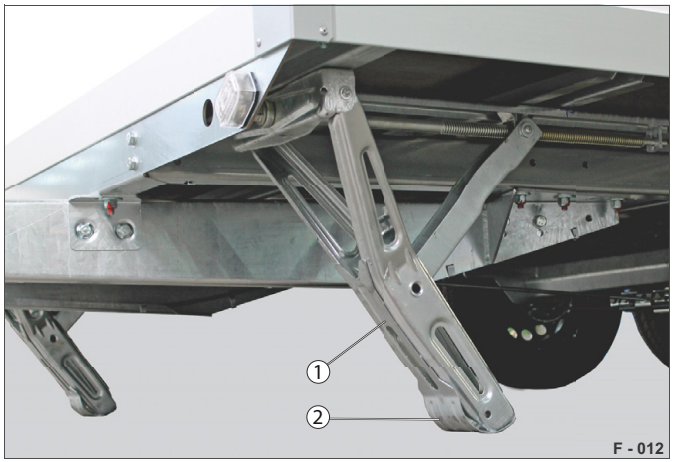


Fig. 38 Corner leg, support position

1 Corner leg
2 Adjustable support

– It is operated with the hand crank.
– The corner legs may not be used as jacks.
– They must not be used to raise the trailer.
– Taking the weight off the parked trailer with a load.
– Stable support for long-term parking (sales trailer).
– Max. support load (1000 kg per support) above a setting angle of 45°.

Lowering

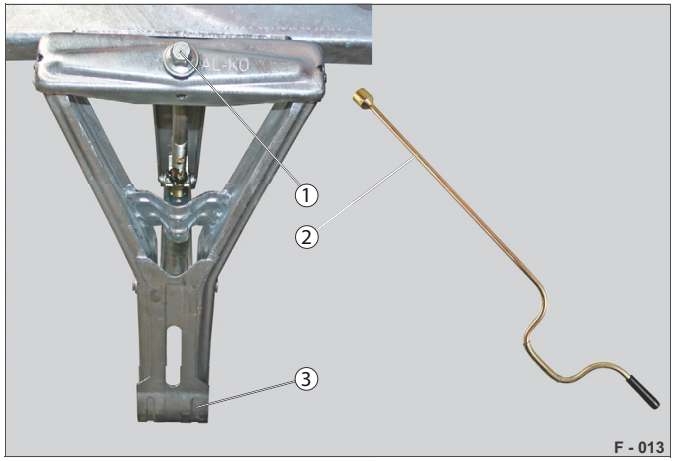


Fig. 39 Crank down the telescopic crank support

1 Crank handle base
2 Crank handle
3 Adjustable support

The trailer must be level.
The corner legs need to take the load evenly.

► Insert the crank handle (Fig. 39 /2) into the crank base (Fig. 39 /1).
► Wind until the adjustable support (Fig. 39 /3) reaches the ground.
► Pull out the crank handle and stow it away.

Raising

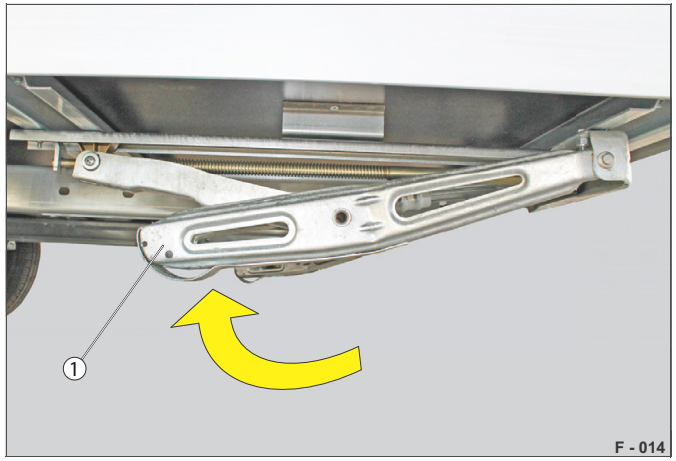


Fig. 40 Telescopic crank supports, driving position

1 Adjustable support

► Wind up the adjustable support (Fig. 40 /1) all the way up using the crank handle.
► Stow the crank handle and secure it in/on the trailer.

Folding supports

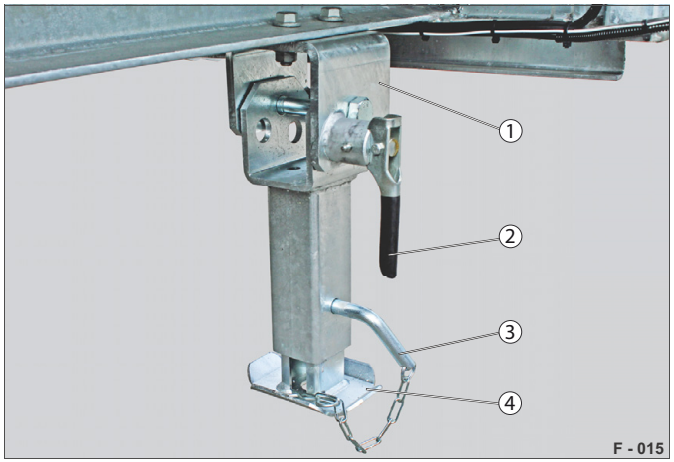


Fig. 41 Folding support, support position

1 Fastening bracket
2 Spring latch
3 Plug pins
4 Adjustable support

– Manual unlocking with spring latch.
– These are operated without tools.
– Robust, used for construction transporters / tippers.
– Stabilisation when loading / unloading.

CAUTION

Operating folding supports under the chassis!

You could hit your head / other parts of your body when operating the folding supports.

► Only operate the folding supports when the drop sides are closed and secured.

Folding down

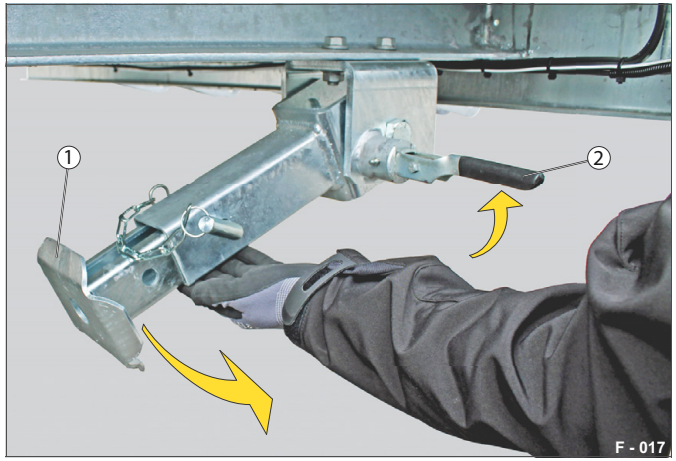


Fig. 42 Folding down folding support

1 Adjustable support
2 Spring latch

► Pull the spring bolt (Fig. 42 /2).
The adjustable support (Fig. 42 /1) folds down automatically.

► Release the spring latch.
The adjustable support locks in place itself.

► Check the locking.

Swivelling up

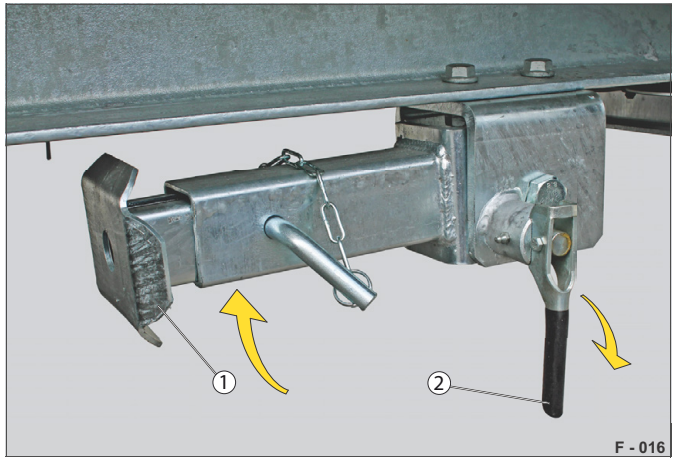


Fig. 43 Folding support, driving position

1 Adjustable support
2 Spring latch

► Pull the spring bolt (Fig. 43 /2).
► Swivel the adjustable support (Fig. 43 /1) up and lock it in place with the spring latch.

Height-adjustable drawbar (HV)

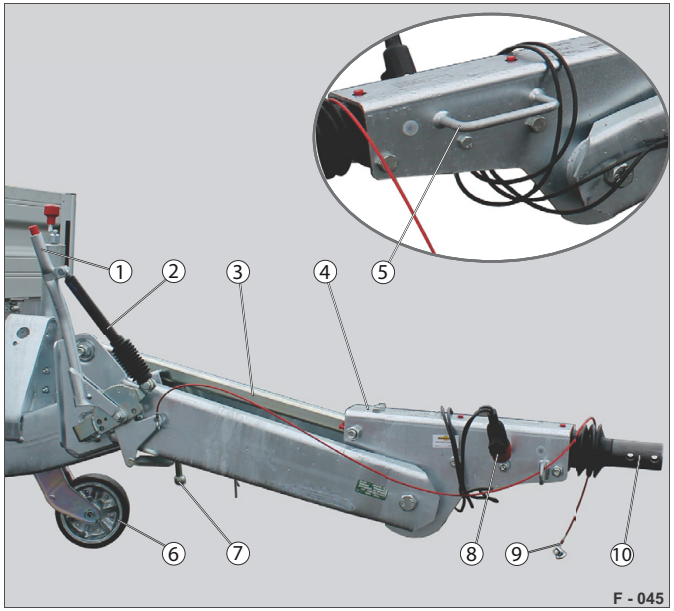


Fig. 44 Height-adjustable drawbar (HV)

1 Hand brake
2 Gas strut
3 Control rod
4 Overrun device
5 Handle
6 Jockey wheel
7 Toggle locking switch
8 Electric systems
9 Safety cable
10 Towing connection

– HV drawbar can be adjusted to the height of the drawbar coupling.
Adjustment range: upwards 50°, downwards 10°.
– The overrun device always remains horizontal during the adjustment process.
– The gas strut supports the height adjustment.
– The coupling can be changed by the customer: Drawbar coupling / towing ring (see Fig. 45).

WARNING

Drawbar height set incorrectly!

The trailer could come uncoupled - risk of accident.

► Measure the height of the drawbar coupling.

► After adjusting and before tightening the T-handle, check the adjusted height again.

WARNING

T-handle not secured!

The height of the HV drawbar can adjust itself. The trailer could come uncoupled - risk of accident.

► Secure the T-handle with the R-clip.

CAUTION

Adjusting the HV drawbar!

You could pinch / crush hands / fingers in the adjustment mechanism.

► Adjust the HV drawbar with the handle.

NOTICE

Fixed position HV drawbar

If the adjustment mechanism is not used for a long time, the components could seize up.

► Loosen the seized components by jerking them up / down, to the side.

► Clean the contact surfaces of the gearing during maintenance work.

Towing connection

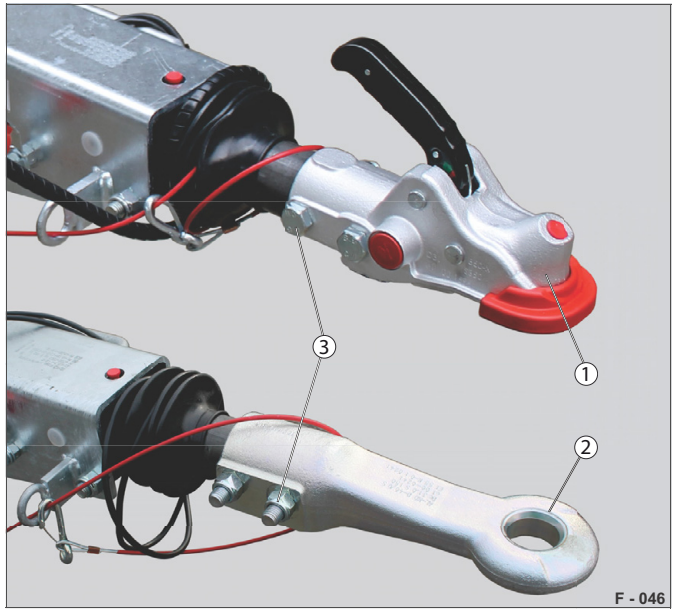


Fig. 45 Variants

1 Ball head coupling
2 Towing ring
3 Mounting bolts

WARNING

Mounting bolts not tightened!

Mounting bolts on the drawbar coupling / towing ring can become loose while driving. The trailer could come uncoupled - risk of accident.

► Tighten the mounting bolts with the specified tightening torque (M=125 Nm).

► Check the function of the HV drawbar after mounting the towing ring.

Height adjustment

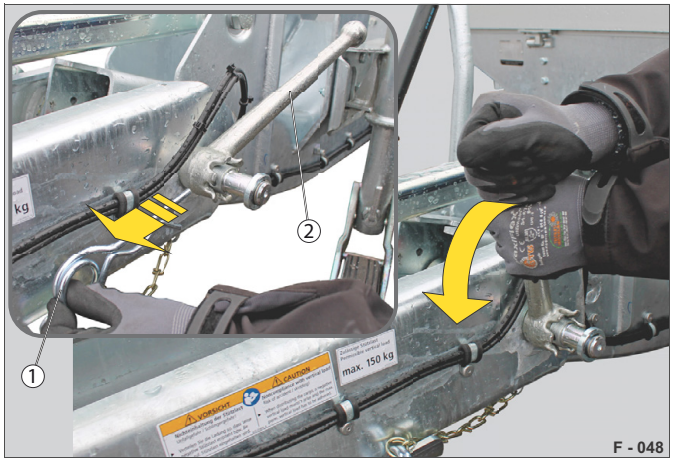


Fig. 46 Undo toggle locking switch

1 R-clip
2 Toggle locking switch

► Pull out the cotter pin (Fig. 46 /1).

► Undo the toggle locking switch (Fig. 46 /2) and turn it to the end stop.
If necessary, help with a rubber mallet.

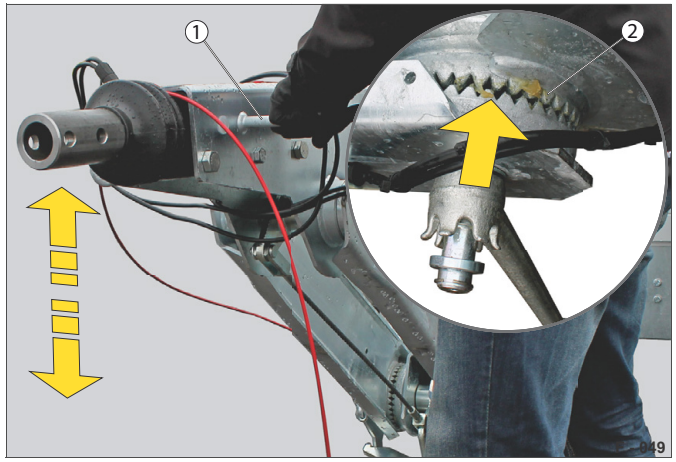


Fig. 47 Adjust height

1 Handle
2 Gearing

► Grip the handle with both hands (Fig. 47 /1) and adjust the HV drawbar to the height of the towing vehicle coupling.
The gearing (Fig. 47 /2) is undone.

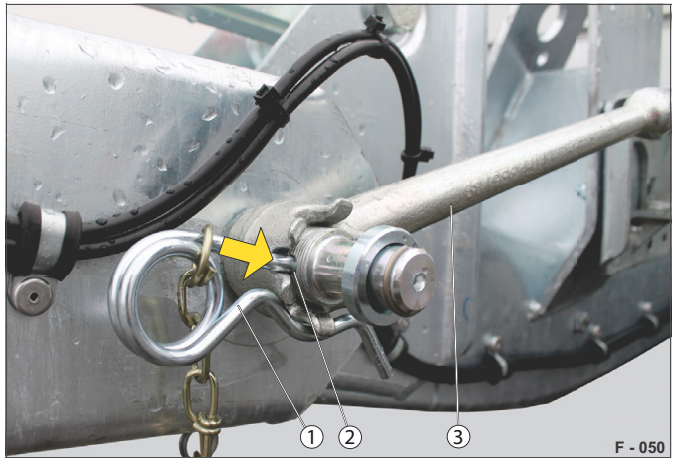


Fig. 48 Hold in place and secure

1 R-clip
2 Hole
3 Toggle locking switch

► Turn the T-handle until it is tight (Fig. 48 /3).
If necessary, help with a rubber mallet.
The drill hole (Fig. 48 /2) for the R-clip (Fig. 48 /1) needs to be freely accessible.

► Insert the R-clip into the drill hole.
The R-clip will clip into place.

The HV drawbar is secured.

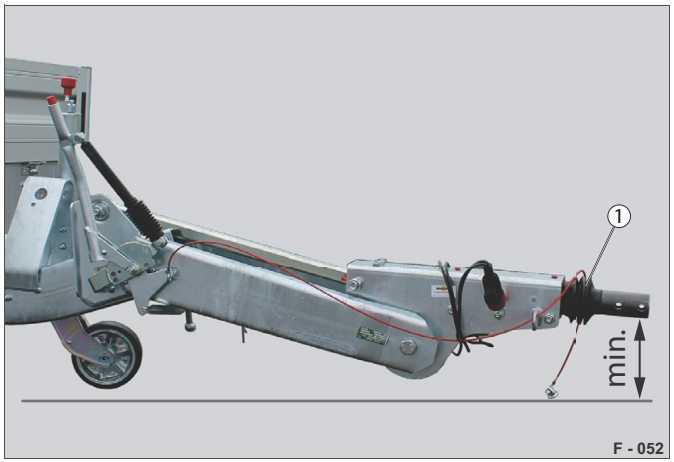


Fig. 49 HV drawbar minimum height

1 Overrun device

The HV drawbar allows a quick and flexible change to different towing vehicles (cars, trucks).

The flat design of the overrun device allows a minimal coupling height or low coupling under the truck cargo bed respectively.

Fig. 50 HV drawbar maximum height

Used for high coupling e.g. tractors, buses or communal vehicles.

Excessive drawbar loads will increase the slide bearing frictional forces.

This results in a reduction in the braking effect.

► Comply with the specified drawbar load.

Changing the towing connection

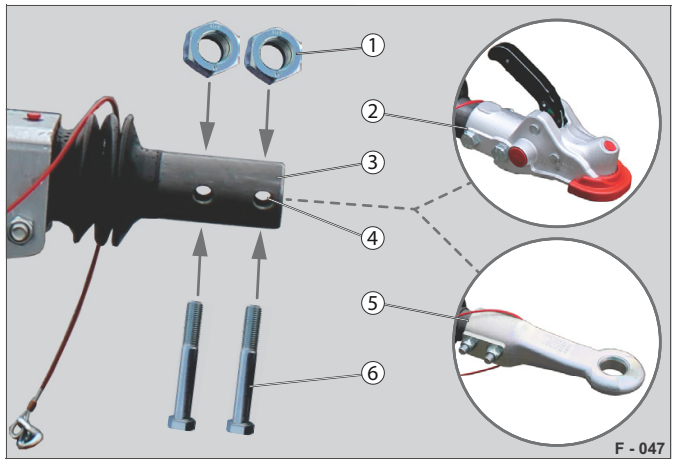


Fig. 51 Towing connection

1 Nut
2 Ball head coupling
3 Lashing rail
4 Through bore
5 Towing ring
6 Mounting bolt

The towing connection can be replaced on an HV drawbar.

There is the option of mounting a ball head coupling or a DIN towing eye.

The drawbar coupling / towing ring is a safety-relevant component. The refit must only be carried out by a technically trained specialist.

Read and observe the assembly instructions.

Turntable trailer (articulated drawbar)

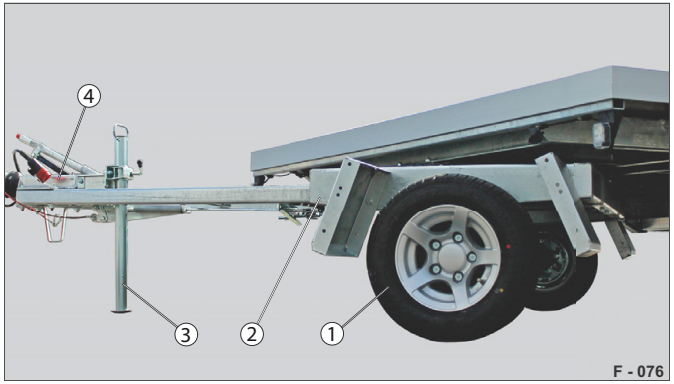


Fig. 52 Turntable components

1 Wheels in size: R10C (10“)
2 Turntable frame
3 Prop stand
4 Overrun device

Turntable trailers with a self-steering front axle can be built as 2-axle or 3-axle versions.

The drawbar has two points of rotation: Coupling point and middle of turntable.
Two angles can be created: between the towing vehicle and drawbar as well as between drawbar and trailer.

WARNING

Couple articulated drawbar trailer under bracket.

Articulate drawbar that is at an angle can fall over when coupling - risk of impact.

Coupling the trailer at an angle is difficult and required a lot of experience.

► Coupling the trailer straight - with an extended train.

► Where possible, park the trailer so that at least twice the towing vehicle length is available in front of the trailer for coupling.

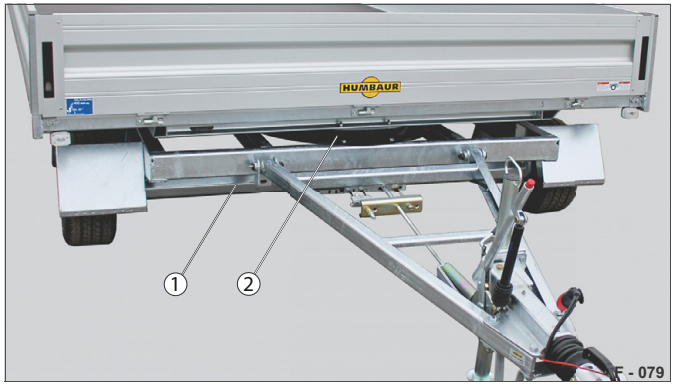


Fig. 53 Turntable function

1 Front axle
2 Turntable

Fig. 54 Turntable function (with roofbow frame)

1 Articulated drawbar
2 Rotation point drawbar

The turntable can be built with various trailer bodies:

– With drop sides as an open box
– With roofbow frame / high tarpaulin
– As box body

Fig. 55 Example: 2-axles with box trailer body

Fig. 56 Example: 3-axles with box trailer body

Articulated drawbar trailers with a mechanical overrun brake can be tested and licensed in Germany through an individual inspection at a test centre, e.g. TÜV, DEKRA.

The country-specific regulations for operating and licensing articulated drawbar trailers (turntable) with overrun brake must be complied with!

Turntable as box body

Fig. 57 Example: 2-axle as box body (Plywood)

Fig. 58 Example: 3-axle as box body (Sandwich)

Turntable with pneumatic brake

Fig. 59 Example: 3-axles as tarpaulin-covered body

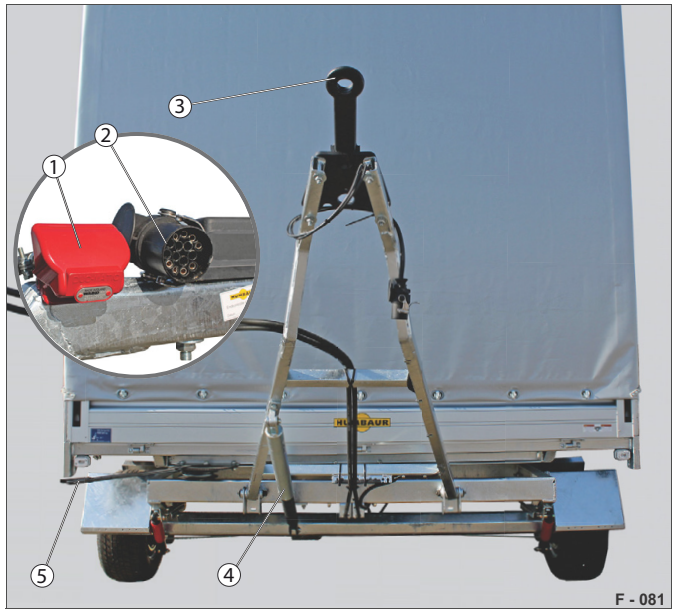


Fig. 60 Drawbar folded up

1 Pneumatic connections: Duo-Matic for brake / storage
2 Electrical plug
3 Towing ring D40 mm
4 Height adjustment device
5 Hand brake for turntable

Fig. 61 Folding up drawbar

1 Hand brake
2 Drawbar

► Straighten the drawbar (Fig. 61 /2) - wheels are parallel to the side drop walls.

► Apply the handbrake (Fig. 61 /1).

The turntable is tight.

► Raise the drawbar - watch out for the cables / hoses, wind up if necessary.

The height adjustment device (Fig. 60 /4) limits the height.

Hydraulic pumps

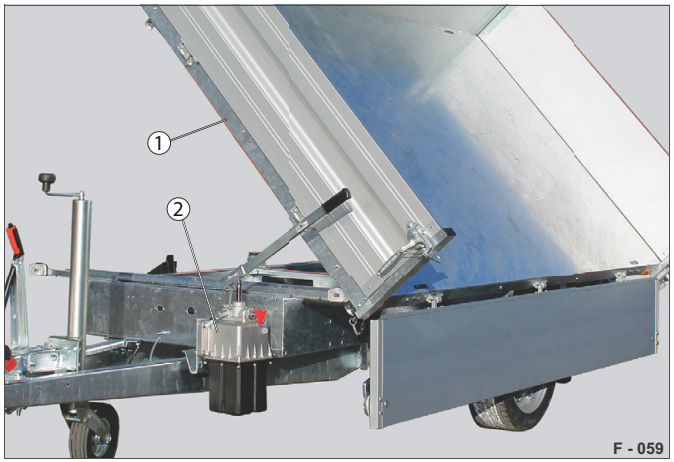


Fig. 62 Tipped position

1 Loading bridge
2 Hydraulic pump

– Hydraulic pumps (Fig. 62 /2) operate a telescopic cylinder to raise / lower or tip the loading bridge (Fig. 62 /1).
– Various versions:
  - Manual pump
  - Electric pump with emergency hand pump
– Version depends on the size of the trailer, the oil flow quantity and the function.

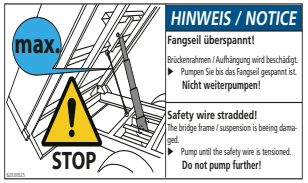
Instructions for operating the hand pump / electric hydraulic system can be found in the type-specific operating manual part 2.

DANGER

Excessive operating pressure!

The maximum permissible pressure is exceeded. Lines could burst / components will be damaged - risk of accident.

► Comply with the maximum specifications for oil pressure and oil quantity - see sticker on the trailer.



► Contact a specialist workshop in the case of a defective hydraulic system.

WARNING

Tipping back the cargo bed!

When tipping back the cargo bed, it is possible to be crushed between the chassis and the loading bridge.

► Keep yourself and other people clear of the danger zone.
► Keep an eye on the danger zone when tipping back.
► If it malfunctions, immediately stop the process

WARNING

Lines are under pressure!

The hydraulic line is under pressure when it is uncoupled. The oil can escape under high pressure and cut people / shred skin!

► Before uncoupling, check that the lines are not under pressure and the towing vehicle has been switched off.

► Use .

CAUTION

Driving with the pump lever unsecured!

The pump lever can come loose from its holder and fall onto the road. People may be hit - accident risk!

► Secure the pump lever before driving off.

NOTICE

Using incorrect / old hydraulic oil

The hydraulic system (hoses, connections, cylinder) could corrode and fail.

► Only use hydraulic oils from the groups HL, HLP and HPLD e.g. ISO-VG 46.

Manual hand pump (model 1)

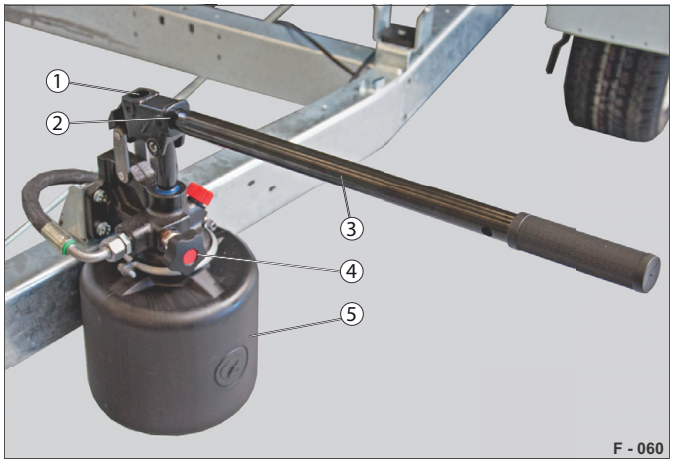


Fig. 63 Manual pump

– Used for example with HUK, Senko

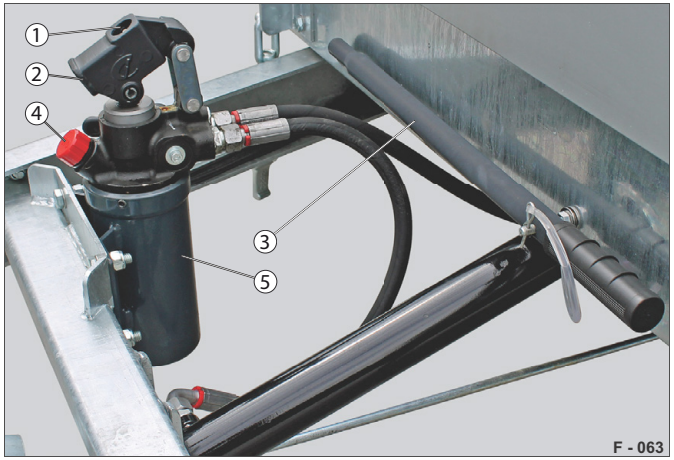


Fig. 64 Manual pump

1 Insertion opening (top)
2 Insertion opening (bottom)
3 Pump lever
4 Valve wheel
5 Oil container

– Used for example with MTK

Manual hand pump (model 2)

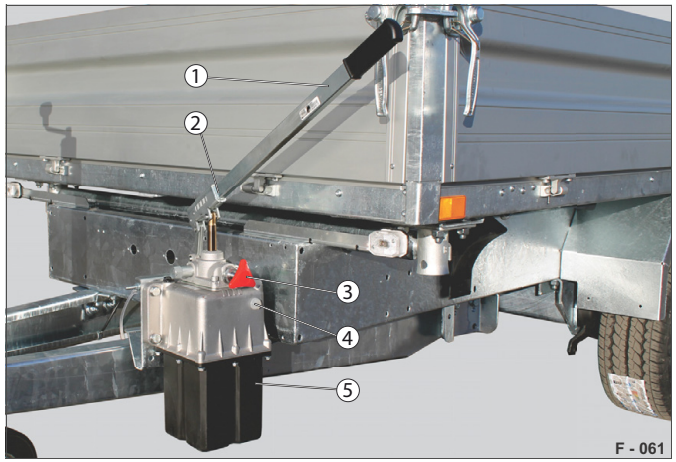
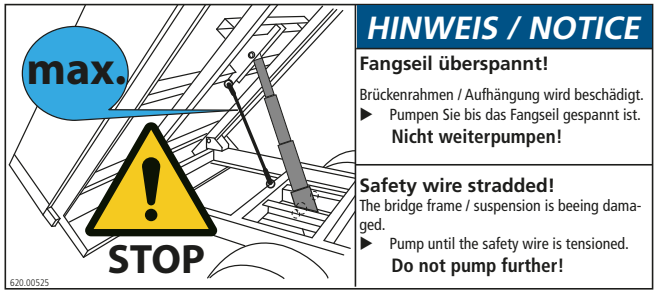


Fig. 65 Manual pump

1 Pump lever
2 Insertion opening
3 Valve lever / valve wheel
4 Oil sight glass (fill level display)
5 Oil container

– Used for example with HUK / HTK



The loading bridge may only be raised / pumped up until the arrester cable is under tension.

Pay attention to label on the trailer.

Electric pump with emergency hand pump

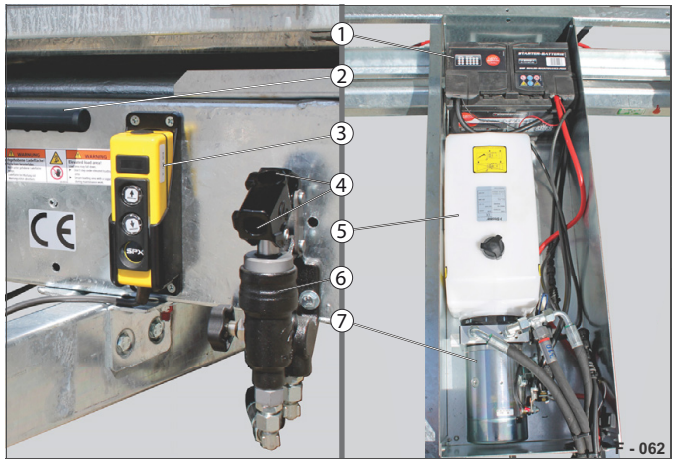


Fig. 66 Electric pump with emergency hand pump

1 Supply battery
2 Pump lever
3 Hand button
4 Insertion opening
5 Hydraulic oil container
6 Emergency hand pump
7 Hydraulic connection

– Used for example with HTK 3.5 t

– Allows loading bridge to be quickly and easily tipped.

Ramps for vehicles

Fig. 67 Example 1: Steel mesh ramp wall

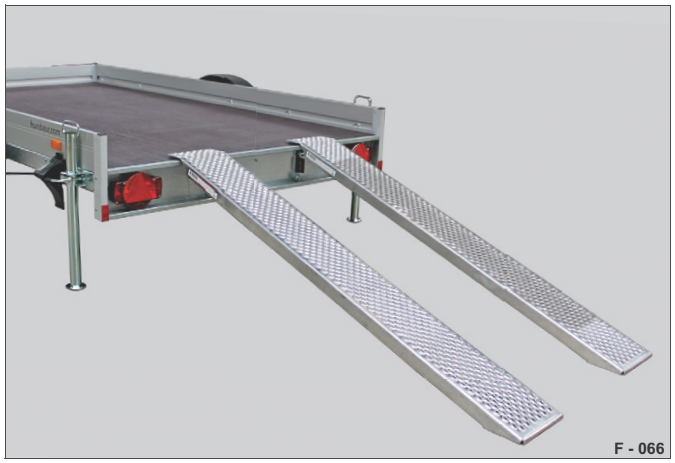


Fig. 69 Example 3: Loading ramps (steel)

Fig. 71 Example 5: Loading ramp (aluminium)

Fig. 68 Example 2: Ramp wall

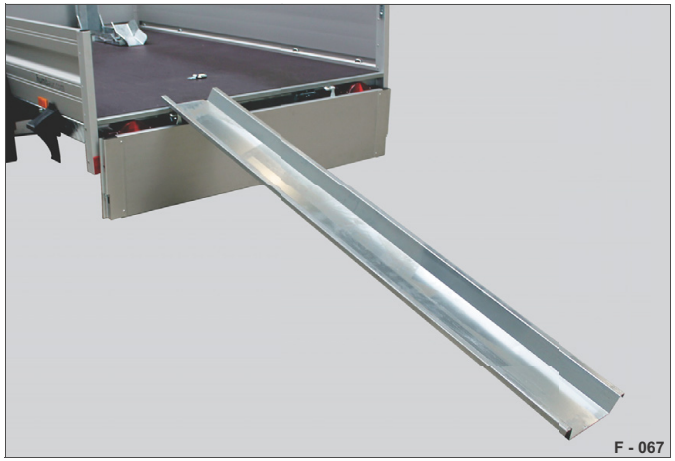


Fig. 70 Example 4: Loading ramp

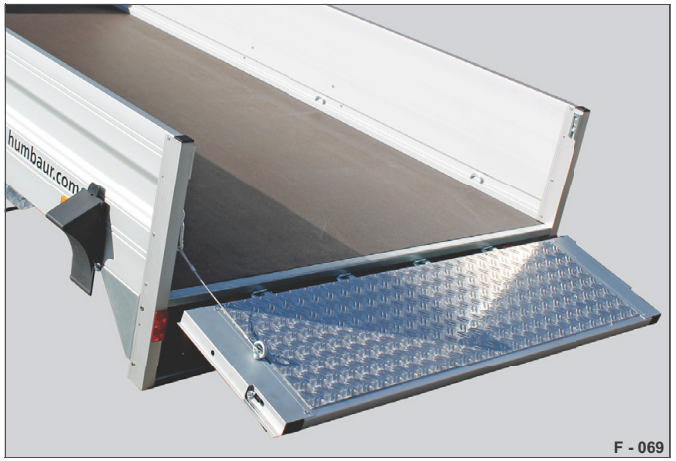


Fig. 72 Example 6: Ramp door

Using ramps

– Ramps such as: Drive-up ramps / tracks, ramp walls make loading and unloading easier.
– Ramps are designed to be suitable for the type of trailer depending on the load.
– Ramps are not designed for point loads.

You will find how to use loading ramps in the operating manual for your type of trailer Part 2.

Driving on the loading ramps with e.g. Pallet trucks or cherry pickers is not permitted - these cause a point load which is too high due to their small wheels.

WARNING

Overloading ramps!

Driving on the ramps may cause a loss of stability and may break them.

They could fall off during the loading / unloading process - risk of being knocked / crushed!

► Do not put more weight on the ramps than the max. permitted - see load data on the label in the operating instructions Part 2 for the respective type of trailer.
► Before loading, ensure that the maximum carrying capacity is not exceeded by the load / vehicle to be loaded.
► Do not drive with a deformed ramp - replace any faulty ramps immediately.

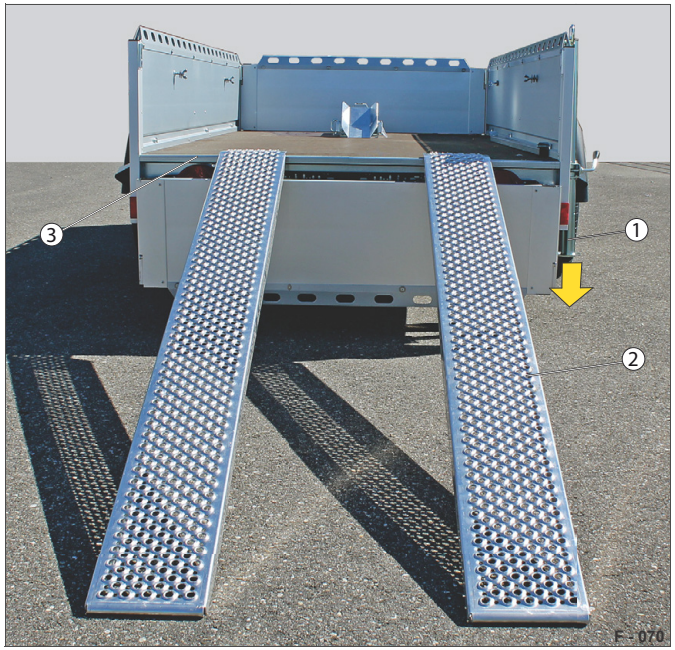


Fig. 73 Safety during operation

1 Supports
2 Loading ramp
3 Edge of cargo bed

Requirements:

– Supports (Fig. 73 /1) are positioned to provide support - stability is ensured.
– Ramps, e.g. track ramps / drive-up ramps (Fig. 73 /2) are positioned at the track width of the vehicle to be loaded.
– Ramps are secured against sliding off the edge of the cargo bed (Fig. 73 /3).
– Drive-up angle does not exceed the 30% incline (max. 16.5°).

CAUTION

Operating ramps!

When lowering / folding down / positioning the ramps, you can crush your hands / fingers / feet between the ground and the ramp.

When closing the ramps, you could crush your fingers / hands between the stanchions / wall edge and ramp.

► Use , .
► Fold down / lower the ramps in a controlled way - do not allow them to fall down.
► Stand to one side when folding down / positioning the ramps – not in the area where you could be injured.

► Keep your distance.
Make sure that your feet are not under the ramps.

Securing ramps (driving position)

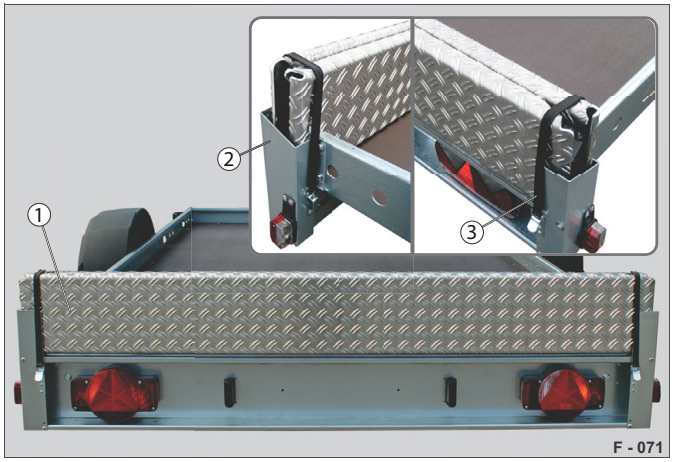


Fig. 74 Example: KFT, track ramps in driving position

1 Loading ramp
2 Track guide
3 Rubber band with ring

► Place the track ramps (Fig. 74 /1) offset from each other in the track guides (Fig. 74 /2) right / left.
► Push the rubber band (Fig. 74 /3) over the track ramps.
► Hook the rubber band into the hook with the ring.

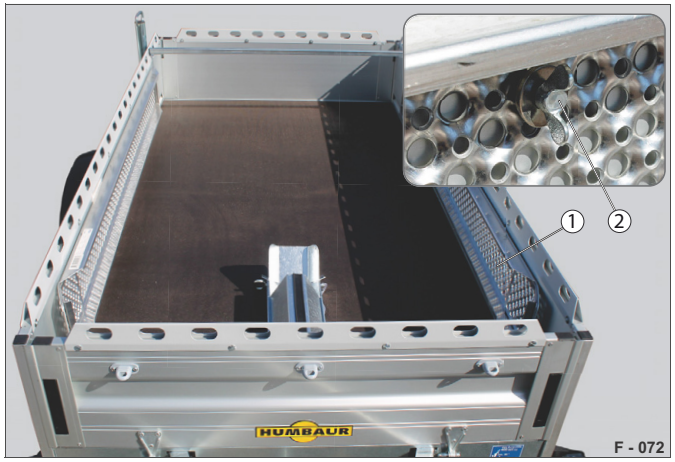


Fig. 75 Example: HA Allrounder, track ramps secured

1 Loading ramp
2 Wing nut

► Position the track ramps (Fig. 75 /1) against the inside of the drop sides.
► Secure the loading ramps with the wing nuts (Fig. 75 / 2).

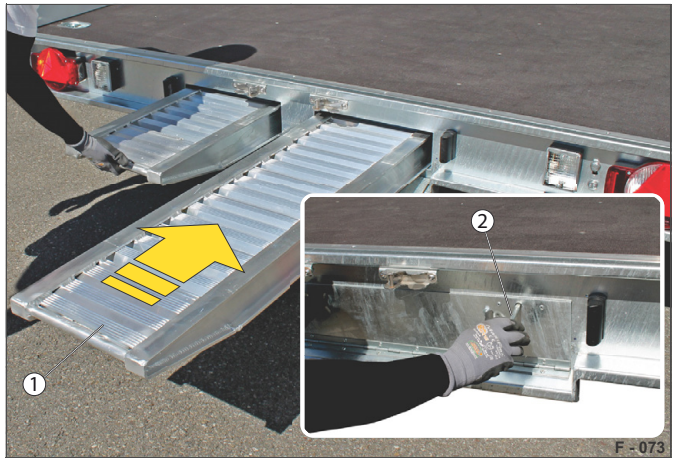


Fig. 76 Example: HT drive-up ramps secured

1 Drive-up ramps
2 Ramp slot cover

► Insert the drive-up ramps (Fig. 76 /1) into the ramp slot.
► Lock the ramp slot cover (Fig. 76 /1) with a square key.

Toolbox

Fig. 77 Mounted on drawbar

1 Toolbox

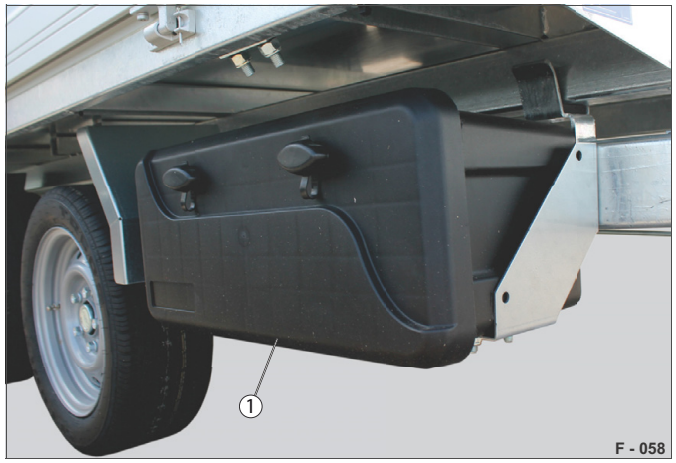


Fig. 78 Mounted on chassis on the side

1 Toolbox

- For storing tools and accessories .e.g lashing straps, cleaning utensils.
- Application on drawbar / on chassis
- Loading capacity (load) depends on type.
- Material: rigid plastic.
  On request also in aluminium or sheet steel.
- The toolbox is not waterproof.

Retrospective installation only in designated attachment points.
Exceeding the total width of the trailer is prohibited.

Read and observe the assembly instructions.

⚠ CAUTION

Driving with unsecured toolbox!

The lid could come open and tools could be catapulted out - risk of accident!

► Close the toolbox before driving off.

⚠ CAUTION

Overloaded toolbox!

The holder could break - risk of accident!

► Observe the maximum load specified.

NOTICE

Placing components on the toolbox

Placing weight on the toolbox can cause it to deform or break.

► Do not put additional weight on the lid of the toolbox.

► Pay attention to the max. load specified.

NOTICE

Climbing on toolbox

Climbing on the toolbox can cause it to deform or break. The toolbox is not designed for heavy weights.

► Do not climb on the toolbox.

Operating the toolbox (model 1)

Fig. 79 Unlocking toolbox

1 Lid
2 Lock

► If applicable, unlock the shackle lock (Fig. 80 /1).
► Pull both locks (Fig. 79 /2) open and fold them down.
► Fold the lid (Fig. 79 /1) upwards.

Fig. 80 Toolbox open

1 Shackle lock
2 Lid
3 Lock

► Stow tools / accessories / lashing materials securely and so they do not rattle.
Max. load 9 kg.
► Close the lid (Fig. 80 /2).
► Hang both locks (Fig. 80 /3) into the groove on the lid and press them down until they click into place.
► Lock the lid, for example with a shackle lock (Fig. 80 /1).

Operating the toolbox (model 2)

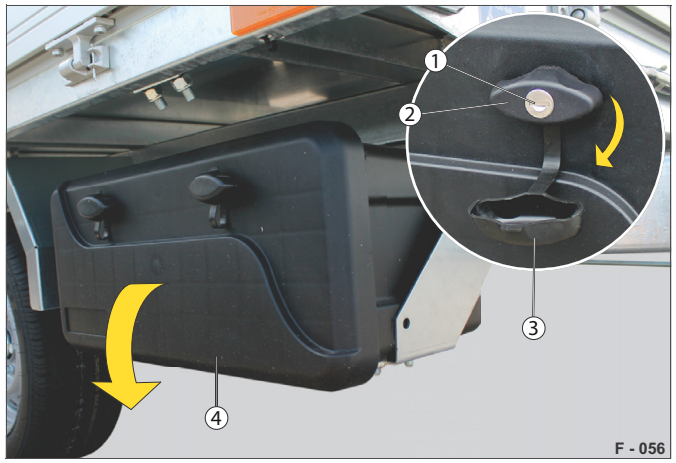


Fig. 81 Using the toolbox

1 Lock cylinder
2 Lock
3 Cover
4 Lid

Opening

► Fold the cover (Fig. 81 /3) off the lock cylinder (Fig. 81 /1).
► If required, use a key to open the locks (Fig. 81 /2).
► Open the locks by turning.
► Fold down the lid (Fig. 81 /4).
► When opening the lid, make sure that nothing falls out, like tools or lashing materials.

Closing

► Fold the lid upwards.
► Close the locks by turning.
► If required, use the key to lock the toolbox.
The lid is locked.
► Fold the covers (Fig. 81 /3) closed.

Wheels / tyres

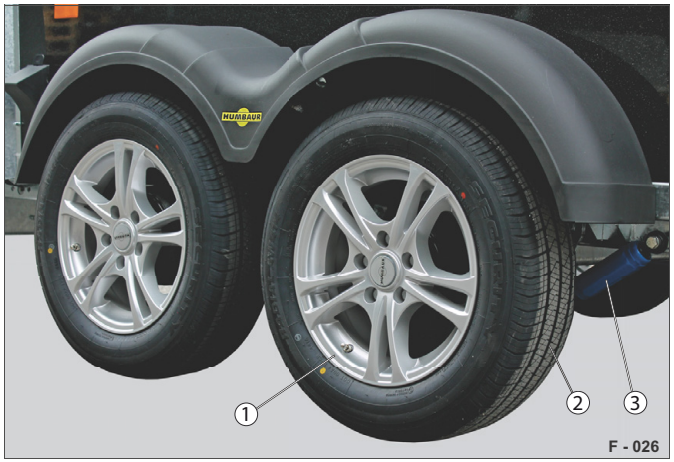


Fig. 82 Aluminium rims

1 Rim
2 Tyres
3 Wheel shock absorbers

– Enter size in COC papers according to type of trailer.
– Design options: Steel or aluminium.
– Standard summer tyres, on request winter tyres.
– No legal requirements for winter tyres, if using trailer frequently in the winter, we recommend getting winter tyres.

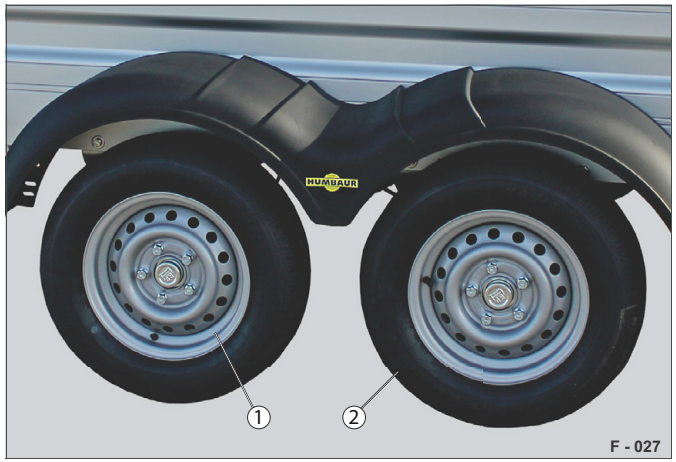


Fig. 83 Steel rims

1 Rim
2 Tyres

Regular maintenance and checks required - see “Tyres/wheels” on page 152.

WARNING

Worn tyre profile / incorrect tyre pressure!

The tyres could burst while driving – accident risk!

The braking distance increases - risk of snaking!

► Regularly check the tyres.

► Check the tyre pressure, profile depth and condition of the tyres - see maintenance table.

WARNING

Loose wheel-nuts!

The trailer may start to snake, tip over be uncoupled from the towing vehicle.

► After every tyre change and after the first 50 km, re-tighten the wheel nuts.

► Check that the wheel nuts are tight at regular intervals (see maintenance table on Page 151).

Spare wheel holder

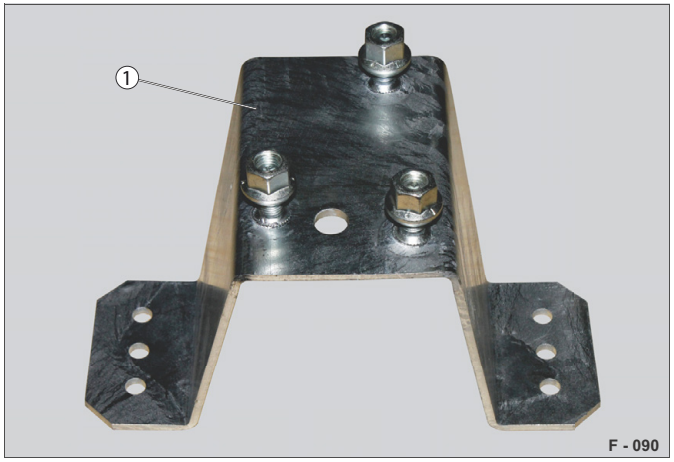


Fig. 84 Spare wheel holder loose

1 Holder (galvanised steel, for 4-bolt or 5-bolt rim)

Fig. 85 Spare wheel holder mounted

1 Holder mounted on front wall (e.g. box)

There is a spare wheel holder for 4-bolt and 5-bolt rims.

Fig. 86 Spare wheel holder on drop side

1 Spare wheel mounted

The spare wheel holder can be mounted in different places on the trailer. Depending on the equipment and type of trailer.

Read and observe the assembly instructions.

Find out beforehand whether and how a spare wheel can be mounted on your trailer - see “Carrying a spare wheel” on page 155.

Pay attention to the additional weight of the spare wheel.

Regular maintenance and checks required - see “Check tyre condition” on page 154.

Fig. 87 Spare wheel covered

1 Spare wheel cover

The cover made of plastic (black) is available for wheel sizes 13“, 14“ and 15“.

WARNING

Spare wheel / spare wheel holder undone!

The spare wheel or holder could fall off and cause accidents.

► Regularly check that the screw connections on the spare wheel holder and spare wheel are tight.

5 Body

Drop sides in general

Fig. 1 Drop sides

1 Front drop side, folded down
2 Side drop side
3 Rear drop side
4 Stanchion
5 Flat-bed trailer

– The drop sides enable positive load securing.
– Drop sides can be fixed, fold-down, removable or swivel-mounted.

Comply with when handling:

If the trailer is loaded, then relief the pressure from the load if applicable before unlocking the drop sides!

– Stand next to the drop side before releasing the locks.
– Release the locks one after the other and hold the drop side - there must not be any pressure from the load.

Driving with unlocked / unsecured drop sides is not permitted!

Warnings in general

Fig. 2 Unsecured drop sides / stanchions

1 Stanchion
2 Cargo bed
3 Rear drop side

Fig. 3 Covered lights

1 Rear lighting
2 Rear drop side, folded down

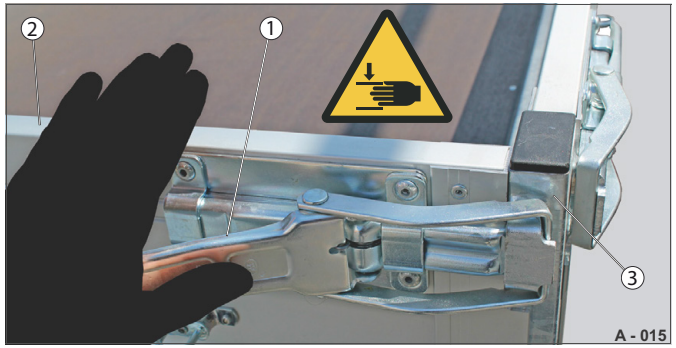


Fig. 4 Crushing zone

1 Lock
2 Drop side
3 Stanchion

WARNING

Driving with open drop sides / stanchions!

People may be caught and dragged along. The goods might fall out. Drop sides could touch the floor - risk of accident!

► Close / secure all drop sides before starting to drive.

WARNING

Unsecured locks!

Drop sides could fold down while driving - risk of accident!

► Check that all locks are closed before driving off.

CAUTION

Removed drop sides!

Removed drop sides could become an obstacle - trip hazard!

► Do not place removed drop sides directly in the area required for loading and unloading.

WARNING

Driving with the rear drop side folded down!

Rear lighting is covered. Rear drop side could touch the floor - risk of accident!

► Remove the rear drop side when driving with a load projecting to the rear.

WARNING

Driving as flat-bed with stanchions inserted!

The stanchions could be thrown off while driving and hit people – risk of accident!

► Remove all drop sides before starting to drive.

► Remove all stanchions before starting to drive.

CAUTION

Handling drop sides and locks!

Hands could be crushed when opening / closing drop sides and locks.

► Carefully fold down the drop sides.

► Do not hold drop sides you intend to latch directly in the area where the stanchions or locks are.

► Close the locks with the flat of your hand.

CAUTION

Drop sides under pressure from a load!

The drop sides could fly open when they are being opened - impact risk!

► Check to make sure that the goods are not pressing against the drop side before unlatching the drop side locks.

► If required, reposition the load.

► Open the drop side from the side.

Handling locks

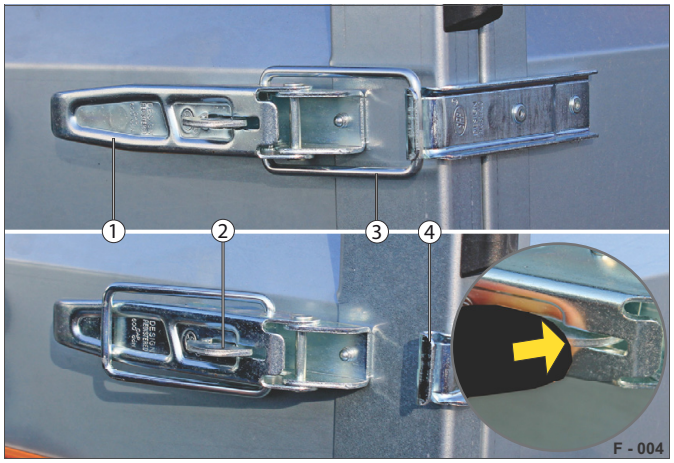


Fig. 5 Tension lock (STEELY)

1 Handle
2 Securing device
3 Bracket
4 Strap

Opening

► Press in the lock (Fig. 5 /2) and pull on the handle (Fig. 5 /1).

The bracket (Fig. 5 /3) is released.

► Swing open the bracket so that it is released by the latch (Fig. 5 /4).

Closing

► Place the bracket over the latch.

► Use a flat hand to press the handle towards the drop side.

The lock latches into place.

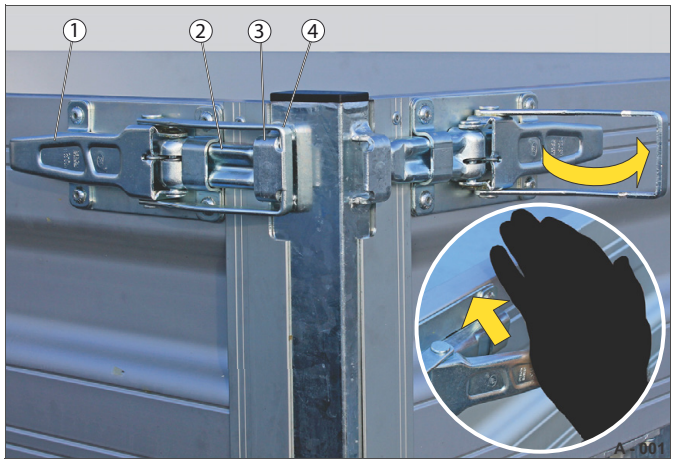


Fig. 6 Tension lock (HU, HUK, HT, HTK)

1 Handle
2 Tongue
3 Strap
4 Bracket

Opening

► Pull the handle (Fig. 6 /1).

The bracket (Fig. 6 /4) is released.

► Swing open the bracket so that it is released by the latch (Fig. 6 /3).

Closing

► Place the bracket over the latch.

► Use a flat hand to press the handle towards the drop side until it engages.

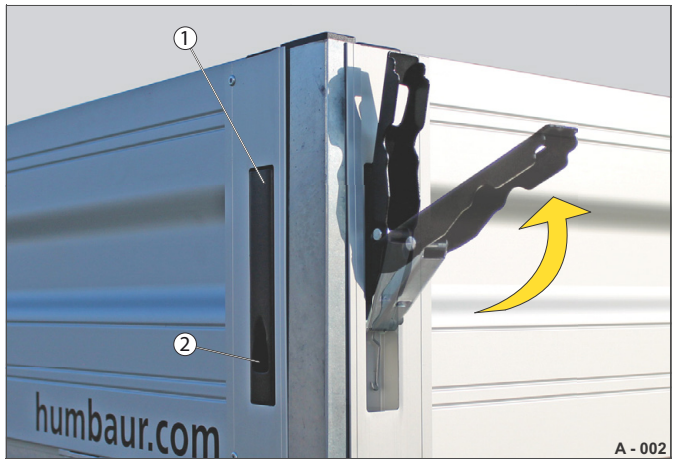


Fig. 7 Covered lock (STARTRAILER, HA, HT)

1 Handle
2 Access opening

Opening

► Put your hand in the access opening (Fig. 7 /2).

► Pull the handle (Fig. 7 /1) upwards.

Closing

► Fold the handle shut with the flat of your hand.

The hidden lock snaps shut.

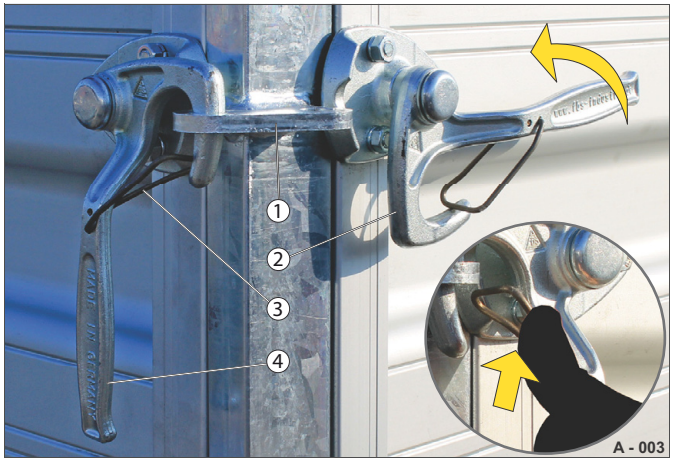


Fig. 8 Angle lever lock (HTK, HT, box, horse)

1 Ring
2 Hook
3 Locking spring
4 Angle lever

Opening

► Press in the locking spring (Fig. 8 /3) and at the same time rotate the angle lever (Fig. 8 /4) wide open so that it releases from the ring (Fig. 8 /1).

The hook (Fig. 8 /2) is released.

Closing

► Turn the angle lever lock closed so that the hook engages in the ring and the locking spring snaps into place.

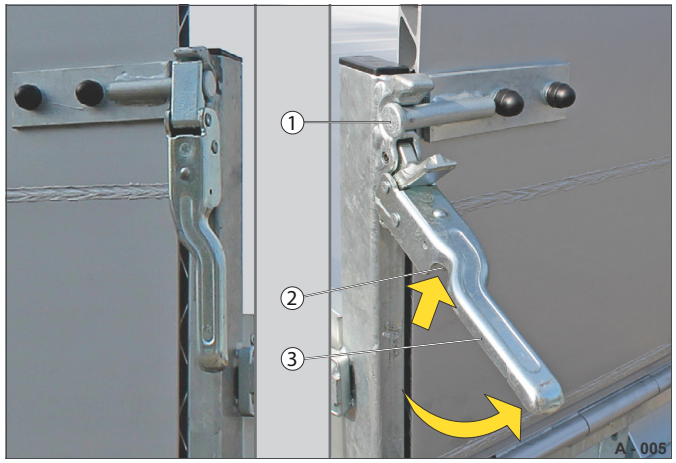


Fig. 9 Lug lock (ramp wall)

1 Lug
2 Locking latch
3 Locking lever

Opening

► Engage the locking latch (Fig. 9 /2).

► Pull the locking lever (Fig. 9 /3).

The lug (Fig. 9 /1) is released.

Closing

► Press in the locking lever with the flat of your hand.

The locking latch latches into place.

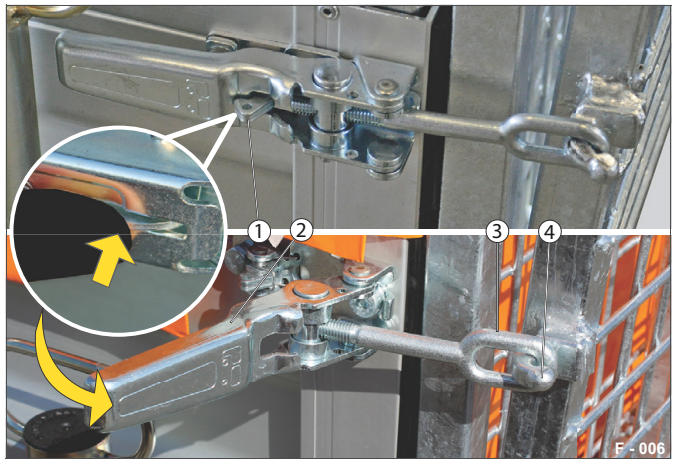


Fig. 10 Ramp wall connection

1 Snap-lock
2 Quick-release lever
3 Eyelet
4 Hook

Opening

► Press the snap lock (Fig. 10 /1) in.

► Pull the quick-release lever (Fig. 10 /2) open and take the ring (Fig. 10 /3) off the hook (Fig. 10 /4).

Closing

► Pull the quick-release lever outwards, so that the ring engages with the hook.

► Push the ring over the hook.

► Push the quick release lever closed so that it latches into the snap lock.

Handling drop side

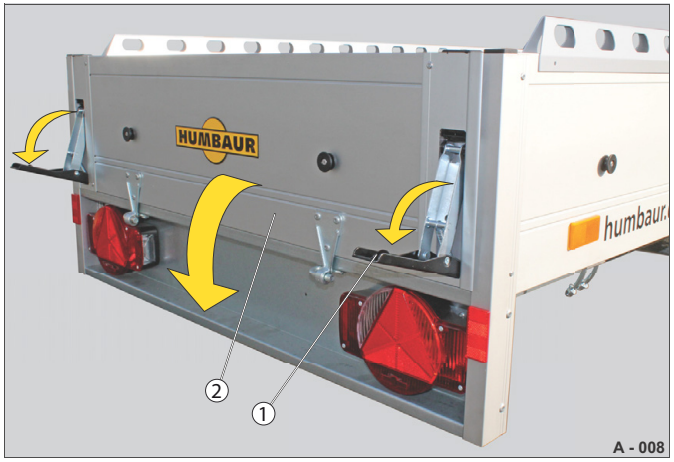


Fig. 11 Open drop side (e.g. STARTRAILER)

1 Lock
2 Drop side

Unlocking

► Release the locks (Fig. 11 /1).
- While doing so, hold the drop side (Fig. 11 /2) with one hand.

Folding down

► Fold down the drop sides down in a controlled way - do not allow them to fall down.

► If applicable, close the locks.

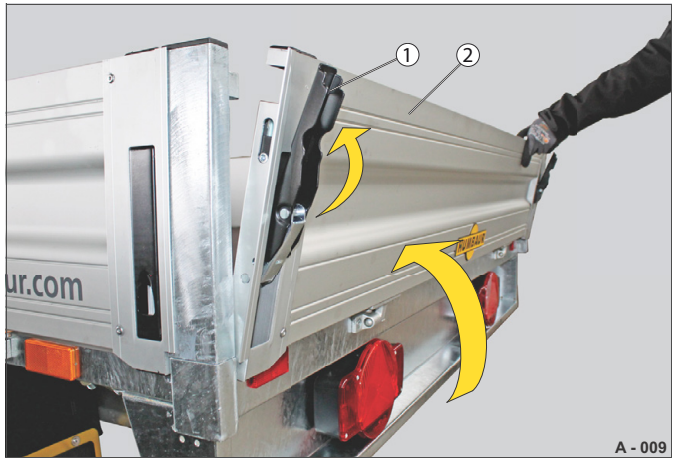


Fig. 12 Close drop side (e.g. HA, HT)

1 Lock
2 Drop side

Closing

► Open the locks as required (Fig. 12 /1).

► Fold up the drop side (Fig. 12 /2) - keep your hands away from the closing edges.

Locking

► Press the drop side shut.

► Lock the locks on the drop side.

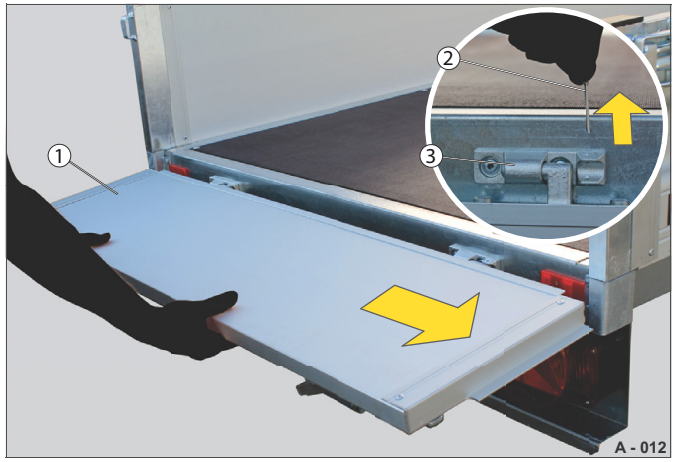


Fig. 13 Removing the drop side

1 Drop side
2 Securing split pin
3 Drop side hinge

Removal

► Unlock the drop side (Fig. 13 /1).

► Fold the drop side to a horizontal position.

► Remove the securing split pin (Fig. 13 /2) from the drop side hinge (Fig. 13 /3).

► Hold the drop side in about the middle lengthwise.

► Carefully pull out the drop side in the direction that is now unobstructed.

► Put the drop side somewhere where it is safe from damage.

Flat-bed trailer

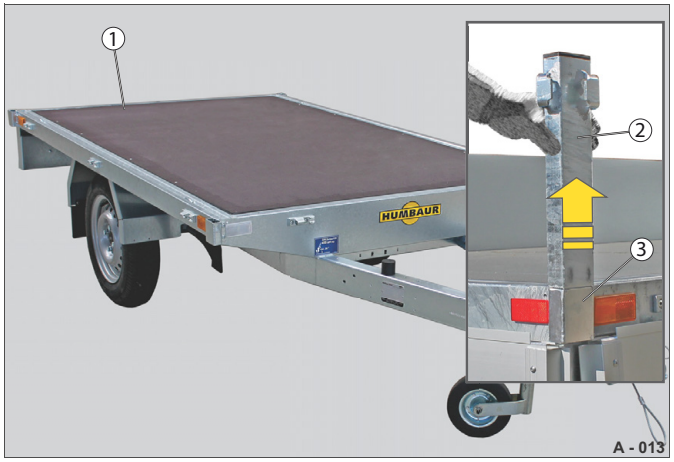


Fig. 14 Drop sides removed, stanchions removed

1 Flat-bed trailer
2 Stanchion
3 Stanchion pocket

Removing stanchions

► Pull the stanchions (Fig. 14 /2) out of the stanchion pockets (Fig. 14 /3).

If the stanchions are stuck

► Release them by carefully tapping the side with a soft-head hammer.

► Store the stanchions / drop sides safely to prevent damage.

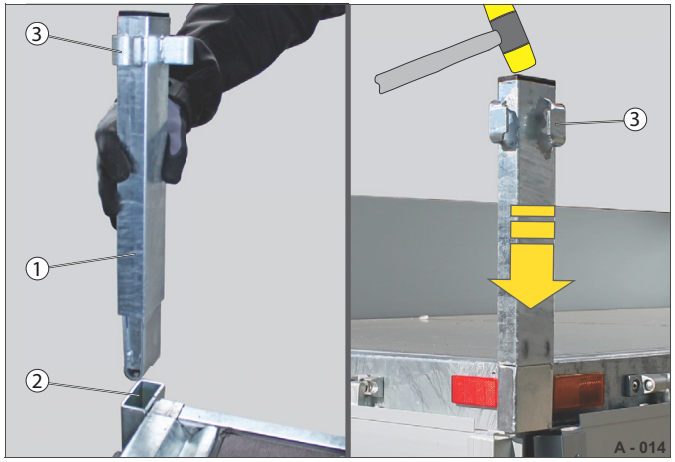


Fig. 15 Inserting the stanchions

1 Stanchion
2 Stanchion pocket
3 Locking lug

Inserting the stanchions

► Insert all stanchions (Fig. 15 /1) into the stanchion pockets (Fig. 15 /2) - pay attention to the direction of the locking lugs (Fig. 15 /3).

► If necessary, use a soft-face hammer to drive them in.

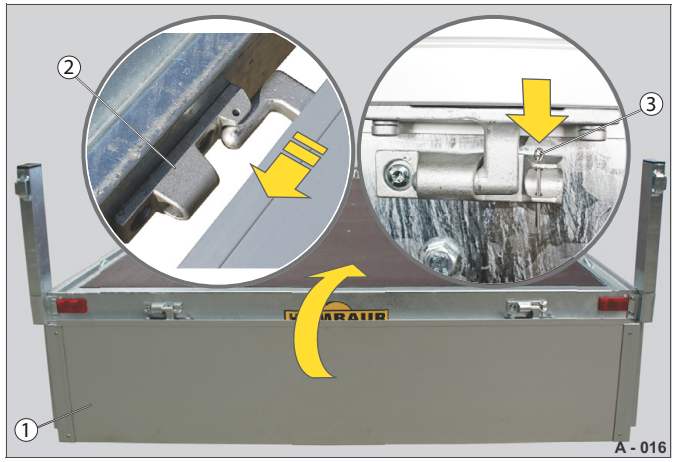


Fig. 16 Drop sides mounted / secured

1 Drop side
2 Hinge
3 Securing split pin

Fitting the drop sides

► Hold the drop side (Fig. 16 /1) lengthwise approximately in the middle.

► Slide the drop side on to the hinges (Fig. 16 /2) in a horizontal position.

► Insert the securing split pin (Fig. 16 /3) into one of the hinges.

► Force the securing split pin apart slightly.

► Close and lock the drop sides.

Side wall extension

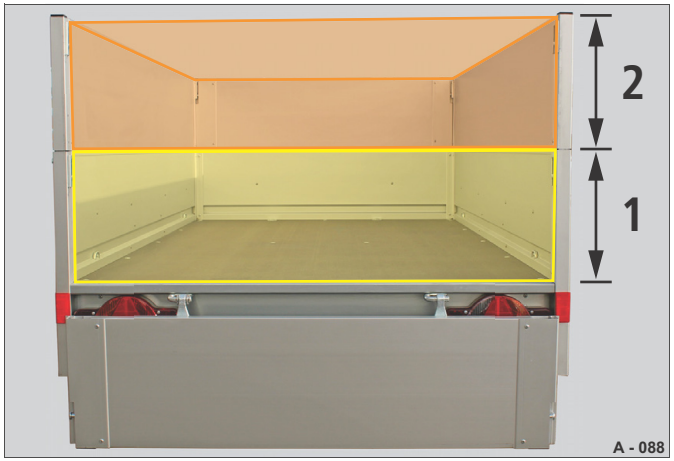


Fig. 17 Cargo volume

1 High basic drop side
2 High side wall extension

– Increase cargo volume e.g.:
  350 mm (1) + 350 mm (2) = 700 mm x cargo bed (mm²) = cargo volume (mm³).
– Apply to base drop side, secure with locks and screw connections.
– Permanently mounted or removable designs.
– Side wall extensions cannot be folded down.
– Use in combination with cover net, flat cover or rail.
– Various sizes.

The side wall extensions can also be retrofitted.

Read and observe the assembly instructions.

Fig. 18 Secured side wall extension

1 Screw connection

WARNING

Driving without secured / locked side wall extension/corner post extensions!

Unsecured side wall extensions/corner post extensions may be thrown off while driving, causing accidents!

► Screw the corner post extensions into the stanchions of the base drop sides.
► Close all locks on the base drop sides / side wall extensions before driving off.
► Before driving check that all side wall extensions and lamellar plugs are securely mounted.

CAUTION

Handling the side wall extensions!

When handling / mounting / removing the side wall extensions you may crush your hands!

► Handle long side wall extensions with two people.
► Hold onto the side wall extensions firmly with both hands.
► Use , .

NOTICE

Open the main drop side while the side wall extension is in place!

The side wall extensions are mounted on the main drop sides. When opening the main drop sides, the side wall extensions can be damaged.

► Remove the side wall extension before opening the main drop side.

Design versions (examples)

Fig. 19 Side wall extension (e.g. for HA)

Fig. 21 Double side wall extension (e.g. for HT)

Fig. 23 Side wall extension (e.g. for HA 500)

Fig. 20 Side wall extension (e.g. for STEELY)

Fig. 22 Side wall extension (e.g. for STARTRAILER)

Fig. 24 Side wall extension divided in 2 turntable (HD)

Fitting

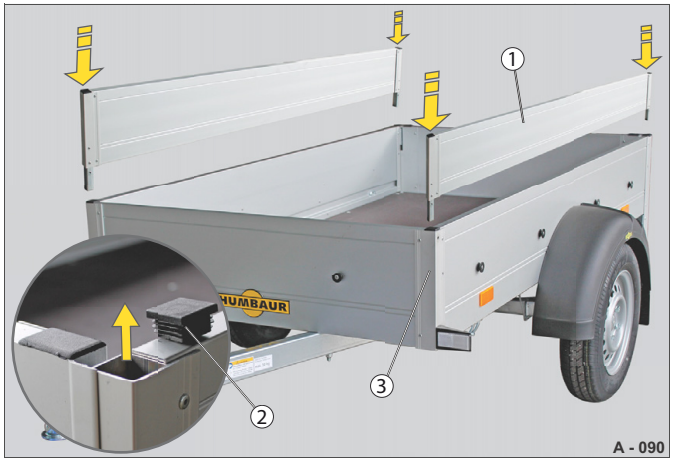


Fig. 25 Fitting side wall extensions on side

1 Side wall extension to the side
2 Lamellar plugs
3 Stanchion

► Remove the lamellar plugs (Fig. 25 /2) from the stanchions.
► Plug the side wall extension on the side (Fig. 25 /1) into the stanchions (Fig. 25 /3) on the base drop side.
► Screw the side wall extension into the stanchions.

Fig. 26 Rear drop side / side wall extension removed

1 Side wall extension on side (secured)
2 Front drop side

When transporting long materials, the front / rear wall extension and the rear drop side can be removed.

► Comply with the safety regulations when transporting long materials.
See “Projecting load” on page 41.

Fig. 27 Fit rear / front side wall extension

1 Rear side wall extension
2 Lock
3 Rear drop side

► Plug the rear / front side wall extension (Fig. 27 /1) onto the secured rear drop side / base drop side (Fig. 27 /3).
The locks (Fig. 27 /2) point outwards.
► Close the locks.

Front drop side extension (examples)

Fig. 28 Aluminium slot-in partition wall

1 Lock
2 Aluminium slot-in partition wall
3 Front drop side

– Fitting on the front drop side (Fig. 28 /3).
– Possible to remove if not being used.
– Function: Load securing to the front.
– Design variants:
Aluminium slot-in partition wall (Fig. 28 /2), steel mesh (Fig. 29 /2)
– Optional: a permanently installed front wall (Fig. 30 /1).

Fig. 29 Steel mesh extension

1 Stanchion
2 Steel mesh

The front wall extension can be fitted retrospectively.

Read and observe the assembly instructions.

Fig. 30 Fixed front wall

1 Front wall

WARNING

Driving with an unsecured front wall extension!

The front wall extension may be thrown off while driving, causing accidents!

► Before driving off, check that the front drop side extension is closed / locked.

Removing extensions

► Open the locks on aluminium slot-in partition wall. (see “Handling locks” on page 106).
► Release the top suspension for steel mesh.
► If applicable, unscrew the screw connections on the stanchions.
► Remove the stanchions.
► It takes two people to remove the front drop side extension.

H-frame

Fig. 31 Example: for HT, HU, HUK, HD

1 H-frame, screwed version

Fig. 32 Example: STARTRAILER, STEELY, HA

1 H-frame, welded version (2-part)

Fig. 33 H-frame secured

1 Screw connection in stanchion

- The H-frame is used the transport and secure long materials, e.g. light planks of wood, pipes, panels, ladders, etc.
- The H-frame is inserted into the front stanchions and secured with a screw connection.
- It is possible to remove the H-frame when not using it.
- Two design versions, screwed or welded assembly kit.
- Various sizes.

Long loads must be secured as individual loading units. It is not permitted to drive with loose loads on the H-frame. The loads must be secured and tied down to the trailer or H-frame.

Read and observe the assembly instructions.

⚠ WARNING

Driving without secured / screwed H-frame!

An unsecured H-frame can be flung out while driving. Load can slide off - risk of accident!

► Screw the H-frame into the stanchions.

► Check that all screw connections are tight before driving off.

Securing a high load

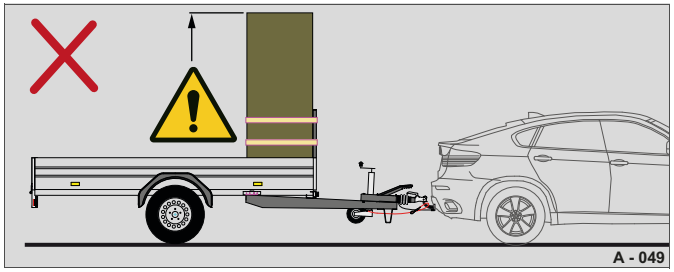


Fig. 34 Load too high - risk of tipping over

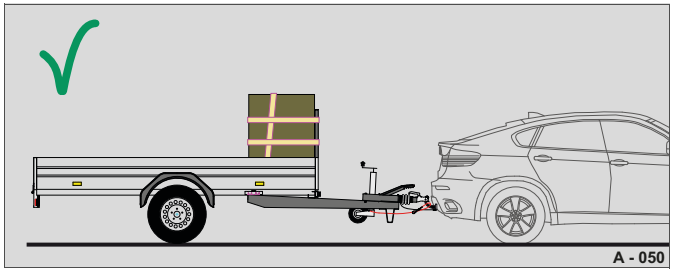


Fig. 35 Load correctly secured

Only light materials which are not too high can be tied to the H-frame.

WARNING

Risk of high loads tipping over!

High loads (e.g. wardrobes, shelving units) that are tied to the H-frame could tip over - risk of accident!

► Before driving off, make sure that high loads do not protrude disproportionately above the H-frame and could tip over.

► If applicable, position high loads flat on the cargo bed.

Securing a long load

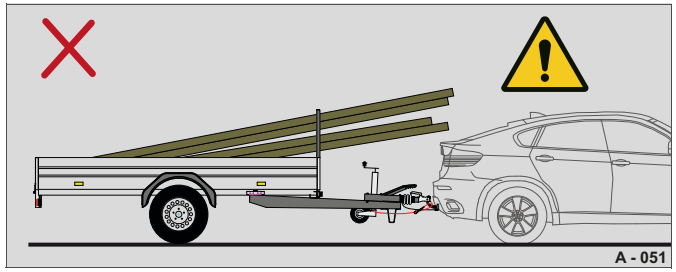


Fig. 36 Risk of collision with towing vehicle

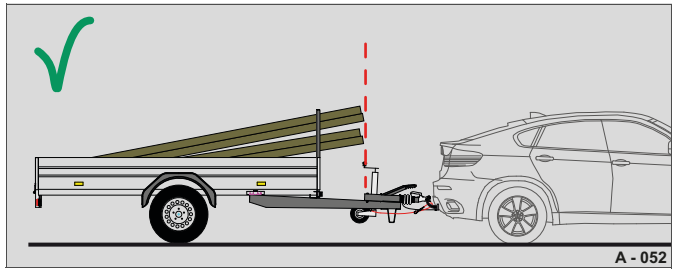


Fig. 37 Load securely positioned

Pay attention to the following situations / risks when transporting long loads with an H-frame.

WARNING

Restricted swivel range – risk of collision!

Loading the load over the front drop side and allowing it to project forwards reduces the swivel range when driving around bends – accident risk!

► Before driving off, check that the restricted swivel range will allow your towing vehicle to drive around bends.

► Adjust the distribution of the load towards the centre between the drawbar if necessary.

Load securing with H-frame

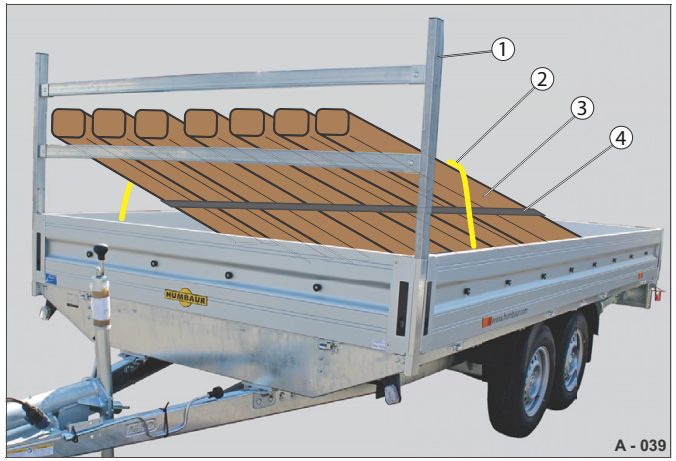


Fig. 38 Load securing with H-frame

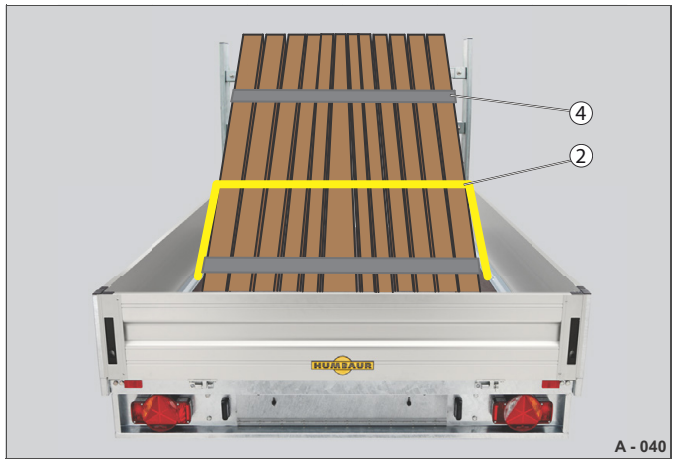


Fig. 39 Load securing with H-frame

1 H-frame
2 Lashing strap
3 Loading unit (long pipes, rods, planks)
4 Securing the loading unit

► Position the load safely so that it cannot slip. Tie down the load to form an individual loading unit (Fig. 38 /3).

► Tie down the loading unit with lashing straps (Fig. 39 / 2).

Rail

Fig. 40 Rail, 2 sides

1 Rail
2 Drop side

– Additional lashing option for light load.
– Mounting on drop sides.
– Can be used in combination with other extensions, e.g. side wall extension, flat cover.

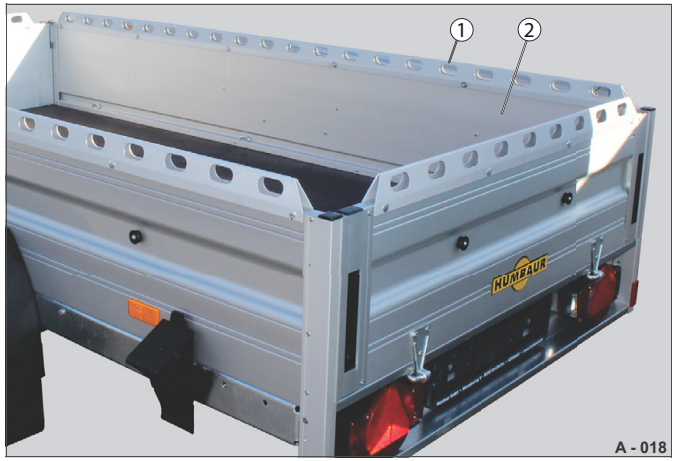


Fig. 41 Rail, 4 sides

1 Rail
2 Drop side

The rail can be mounted retrospectively (side, front rear).

Read and observe the assembly instructions.

WARNING

Positive lashing of load to the rail!

The rail is not suitable for positive lashing down of the load and cannot withstand any high tension forces - deformation!

► Only use the rail as an additional lashing point for positive and non-positive load securing for a light load (max. 150 kg).
► Lash the load to the lashing points.

Tying down load

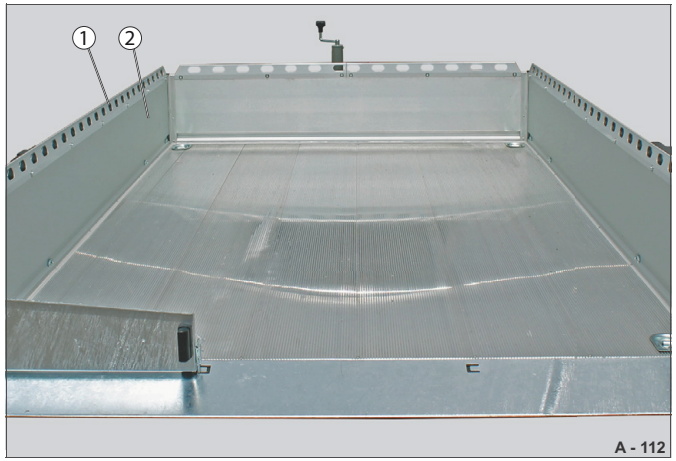


Fig. 42 Rail, 3-side (e.g. HKT lowering device)

1 Rail
2 Drop side

► Pull the lashing material e.g. Wire cable rubber cord, lashing strap etc. through the perforation in the rail.
► Tension the lashing material in parallel if possible.
► Pull the lashing material tight on the rail.

Flat cover

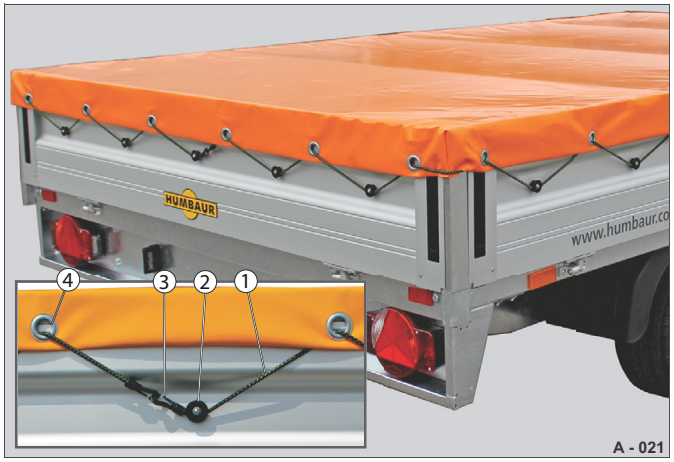


Fig. 43 Lock 1

1 Elastic cable
2 Button
3 Hook
4 Round ring

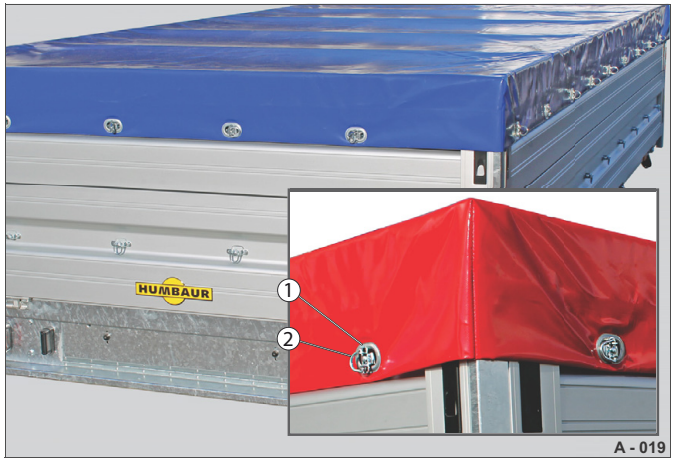


Fig. 44 Lock 2

1 Flat ring
2 Staple

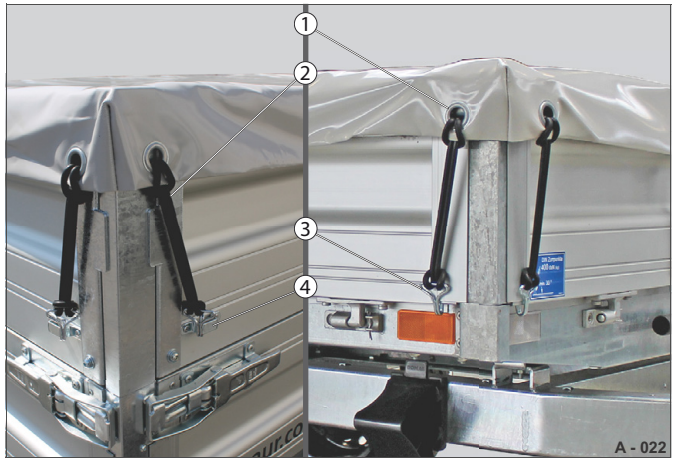


Fig. 45 Lock 3

1 Round ring
2 Tension rope
3 Hook
4 U-bracket (for side wall extension, aluminium extension)

- Cover for loose materials e.g. leaves, sand, straw, gravel, etc. against falling out.
- Privacy and weather protection.
- Application: With elastic cable, staples and tensioning hooks.
- Combination with other superstructures: Drop side, steel mesh, perforated sheet, aluminium extension and rail.
- Different sizes depending on size of the cargo bed.
- Lateral bracing to stabilise the flat cover.
- Lockable fastening rope (optional) - against unauthorised opening / theft.

The flat cover may only be used with closed drop sides / extensions.
It is not designed for securing the drop sides themselves.

Read and observe the assembly instructions.

WARNING

Driving with an unsecured flat cover.

The flat cover could come loose and fly off when driving. Trailer could start snaking due to wind catching under the flat cover.

► Close the cover completely.

► Secure the cover all the way around before driving off.

WARNING

Foreign body on the cover!

Foreign body e.g. ice, snow, water, branches on the flat cover can be thrown off while driving - risk of accident!

► Before driving off, remove all foreign bodies from the flat cover.

CAUTION

Tension ropes / elastic cables are under tension!

When handling tension ropes / elastic cables, you could injure yourselves on the hooks.

► Hold on tight to the hooks when tensioning - do not release while under tension.

Flat cover with side wall extensions (examples)

Fig. 46 On side wall extension (HA, HT, HD)

Fig. 48 On steel mesh extension

Fig. 50 On aluminium extension

Fig. 47 On side wall extension (STEELY)

Fig. 49 On perforated steel plate extension

Fig. 51 On rail (STARTRAILER, HA, HT)

Securing elements

Fig. 52 Corner version: Elastic cable

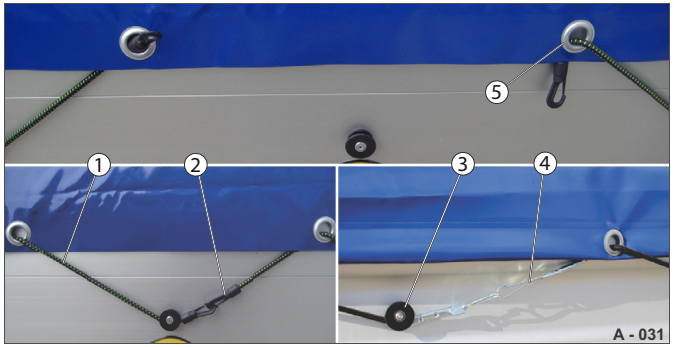


Fig. 53 Elastic cable

1 Elastic cable
2 Plastic hook
3 Round button
4 Metal hook
5 Round ring

► Pull the elastic cord (Fig. 53 /1) through the round rings (Fig. 53 /5) in the cover.

► Hook the ends of the hook into each other.

► Pull the elastic cable over all round buttons (Fig. 53 /3) - the flat cover is tensioned.

► Make sure that the elastic cable is routed properly around the corners (Fig. 52).

Fig. 54 Corner version: Staples

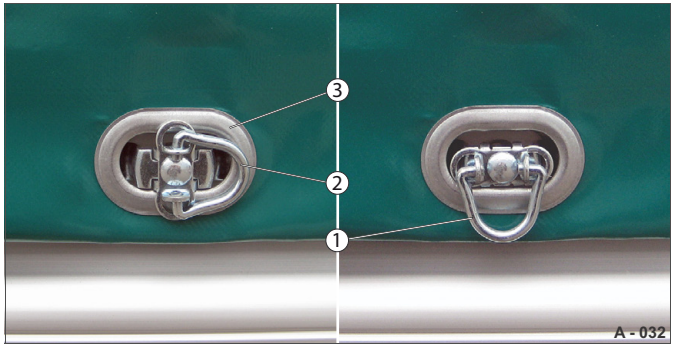


Fig. 55 Staples

1 Staples, open
2 Staple, closed
3 Flat ring

► Pull and rotate the staple by 90° (horizontal position). The staples (Fig. 55 /1) are open.

► Push the flat rings (Fig. 55 /3) over the staples all around the trailer.

► Pull and rotate the staples by 90° (vertical position). The staples (Fig. 55 /2) are closed.

Fig. 56 Corner version: Tension rope with hooks

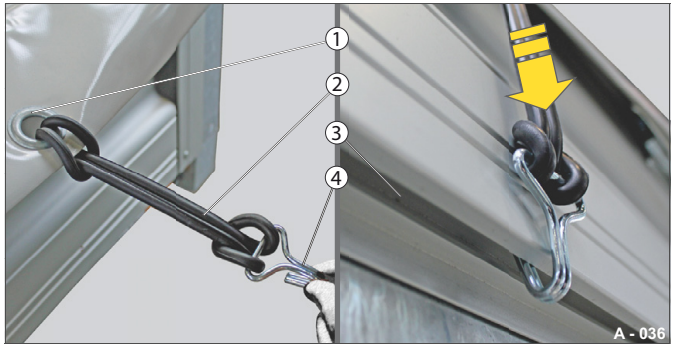


Fig. 57 Tension rope with hooks

1 Round ring
2 Tension rope
3 Drop side slot
4 Hook

The tension ropes (Fig. 57 /2) with hooks are attached in the round rings (Fig. 57 /1).

► Pull the hooks (Fig. 57 /4) down and hook them all around the trailer into the bottom edge in the drop side slot (Fig. 57 /3).

Positioning lateral bracing

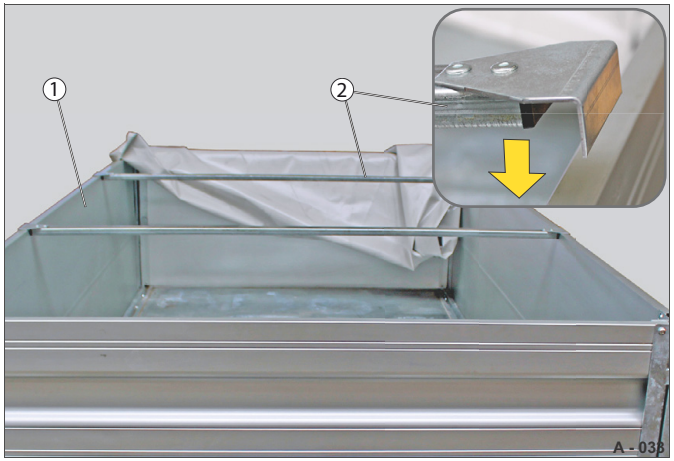


Fig. 58 Lateral bracing positioned

1 Side drop side
2 Lateral bracing

WARNING

Driving with the lateral bracing inserted - without a flat cover!

The lateral bracing could be thrown off while driving and hit people – risk of accident!

► Remove the lateral bracing before driving without a flat cover.

► Slot the lateral bracing (Fig. 58 /2) onto the side drop sides (Fig. 58 /1).

► Position the lateral bracing at equal distances at a 90° angle to the side drop sides.

Handling the flat cover

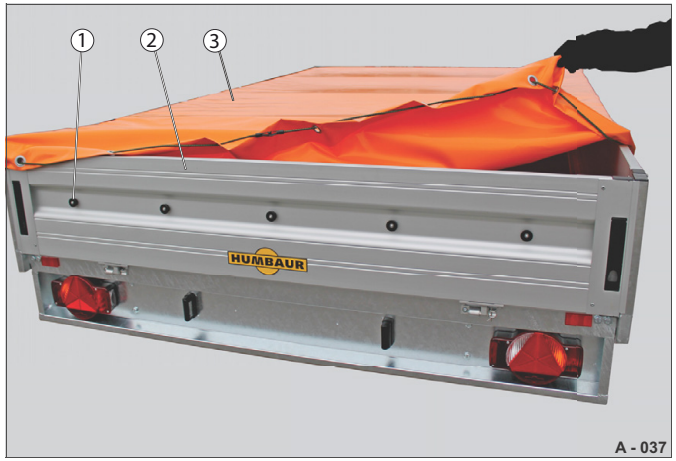


Fig. 59 Pulling on flat cover

1 Securing element
2 Drop side
3 Flat cover

Attachment

► Tension the flat cover (Fig. 59 /3) with the underside facing downwards on the drop sides (Fig. 59 /2).

► Please make sure that the flat cover is not excessively stressed by the load.

► Secure the flat cover with securing elements (Fig. 59 / 1).

Removal

► Unlock the securing elements (Fig. 59 /1) on the flat cover.

► Pull the flat cover from the rear to the front.

► Stow the flat cover without creasing it as far as possible when not using it.
The flat cover must be clean and dry.

Fastening / duty rope (optional)

Fig. 60 Fastening / duty rope lock as anti-theft device

1 Shackle lock
2 Rope end fastener
3 Fastening rope

► Feed the fastening rope (Fig. 60 /3) through all closed staples.

► Connect the rope end fasteners (Fig. 60 /2) to each other - e.g. with a carabiner.

► Use a secure lock such as a shackle lock (Fig. 60 /1).

Tarpaulin cover / roofbow

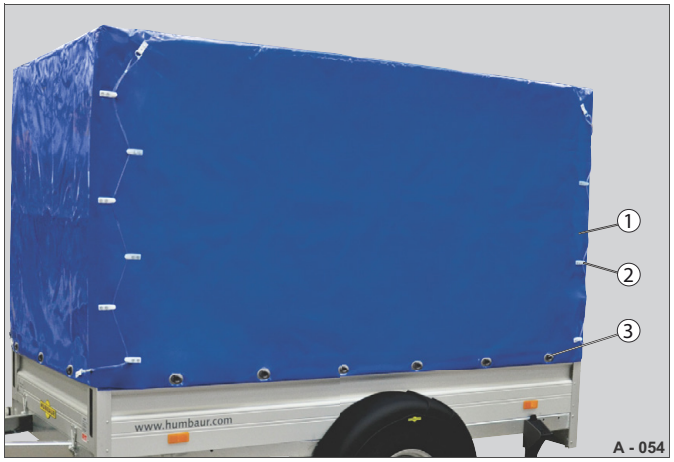


Fig. 61 Secured with a throwing cable / staples

1 Tarpaulin cover
2 Throwing cable
3 Staple

Fig. 62 Secured with a belt / elastic cable

1 Tarpaulin cover
2 Belt
3 Elastic cable

Fig. 63 Securing buckle / elastic cable

1 Tarpaulin cover
2 Buckle
3 Elastic cable

- Tarpaulin cover is tensioned across a roofbow frame.
- Attached with a belt, throwing cable or elastic cable.
- Open the tarpaulin cover from side and rear.
- The drop sides can be folded down for loading/ unloading.
- Fastening rope (secured with staples) prevents unauthorised opening.
- Privacy and weather protection.
- Provides a barrier to prevent load being stolen.
- Can be used as an advertising surface.
- Various sizes and colours.

The tarpaulin cover with roofbow frame can be installed retrospectively.

Read and observe the assembly instructions.

Warnings in general

Fig. 64 Open tarpaulin cover

1 Tarpaulin cover
2 Roofbow frame / slot-in slats

Fig. 65 Roofbow frame without tarpaulin cover

1 Roofbow frame

Fig. 66 Example: Water load on tarpaulin cover

1 Tarpaulin cover, not tensioned (water load)
2 Lock unsecured

⚠ WARNING

Driving with open / unsecured tarpaulin cover!

The tarpaulin cover could come loose and fly off when driving. Gusts of wind getting under the tarpaulin cover - snaking / risk of accidents!

► Close the tarpaulin cover completely.

► Secure the tarpaulin cover using all locking points before setting off.

⚠ WARNING

Positive lashing of load to the roofbow frame!

The roofbow frame is not suitable for positive lashing of the load. It will not absorb the high tension forces - deformation / risk of accident!

► Do not lash the load onto the roofbow frame, use the lashing points on the cargo bed.

⚠ WARNING

Driving with a roofbow frame without a tarpaulin cover!

The tarpaulin cover secures loosely inserted roofbow slats. Parts of the roofbow frame could be thrown out during the journey - accident risk!

► Do not drive with loose slot-in slats.

► Drive with tarpaulin cover and roofbow frame.

⚠ WARNING

Slot-in slats not inserted / Inserted incorrectly!

The cover can be pushed inwards by the force of the wind, e.g. gusts of wind, side wind on bridges, tunnels, cutting through woods, noise protection walls, when overtaking, in free spaces, etc. - risk of snaking / accidents!

► Insert all slot-in slats.

► Check that the slot-in slats are firmly inserted before driving off.

⚠ WARNING

Foreign body on the tarpaulin cover!

Foreign bodies e.g. ice, snow, water, branches can be thrown off while driving - risk of accident!

► Before driving off, remove all foreign bodies /loads from the tarpaulin cover.

⚠ CAUTION

Operating height of tarpaulin cover!

When climbing up to operate the tarpaulin cover you could fall!

► When working on high superstructures, use a stable ladder.

Securing element Part 1

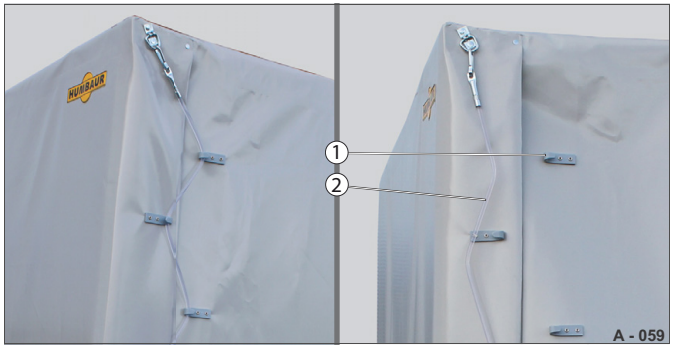


Fig. 67 Throwing cable secured / unsecured

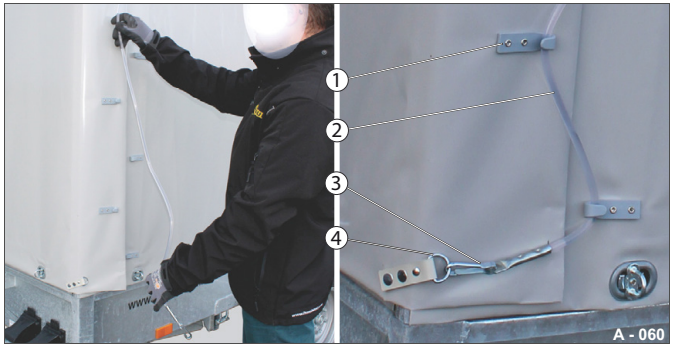


Fig. 68 Secure throwing cable

1 Strap
2 Throwing cable
3 Snap hook
4 Retaining ring

► Lay the throwing cable (Fig. 68 /2) alternately around t he lugs (Fig. 68 /1) from top to bottom.

► Hook the snap hook (Fig. 68 /3) into the retaining ring (Fig. 68 /4).

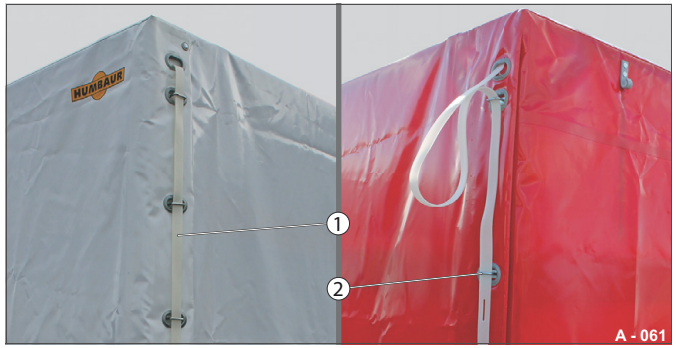


Fig. 69 Belt secured / unsecured

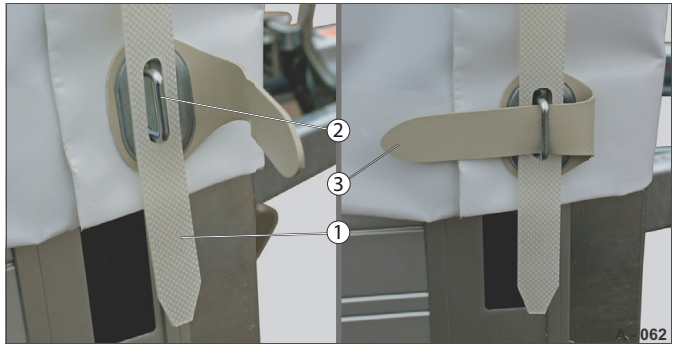


Fig. 70 Secure belt

1 Belt
2 Eyelet
3 Buckle

► Thread the belt (Fig. 70 /1) from top to bottom into the rings (Fig. 70 /2).

► Push the buckle (Fig. 70 /3) through the vertical ring.

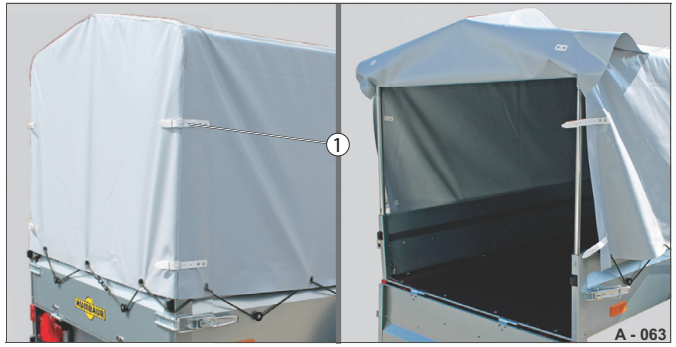


Fig. 71 Buckle secured / unsecured

Fig. 72 Secure buckle

1 Buckle

► Close the buckles (Fig. 72 /1).

Securing element Part 2

Fig. 73 Elastic cable corner version

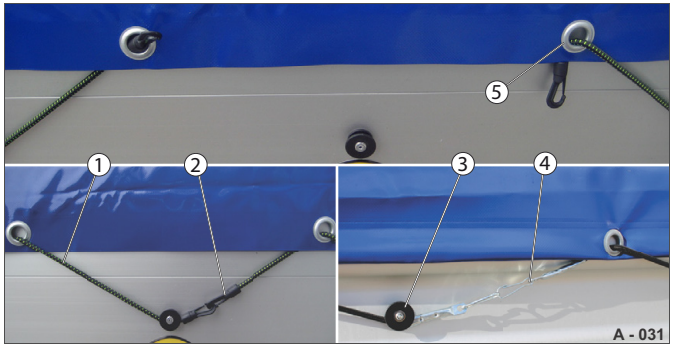


Fig. 74 Elastic cable

1 Elastic cable
2 Plastic hook
3 Round button
4 Metal hook
5 Round ring

► Pull the elastic cord (Fig. 74 /1) through the round rings (Fig. 74 /5) in the cover.
► Hook the ends of the hook into each other - see “Flat cover” on page 117.
► Pull the elastic cable over all round buttons (Fig. 76 /3) - the cover is tensioned.
► Make sure that the elastic cable is routed properly around the corners (Fig. 73).

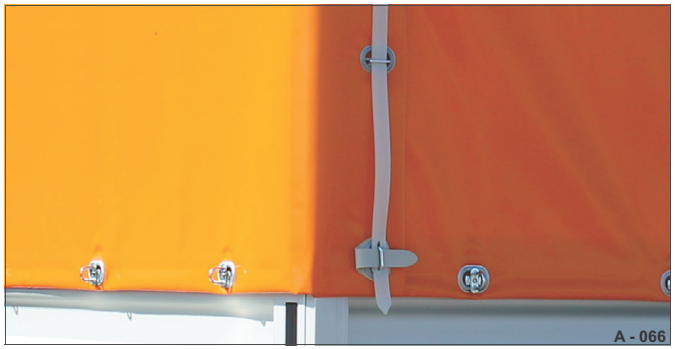


Fig. 75 Staples corner version

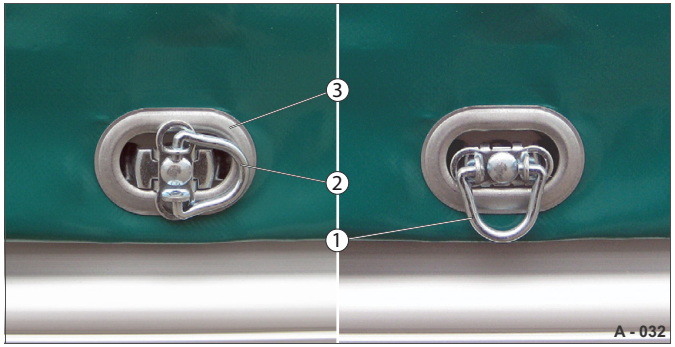


Fig. 76 Staples

1 Staples, open
2 Staple, closed
3 Flat ring

► Pull and rotate the staples by 90° (horizontal position). The staples (Fig. 76 /1) are open.
► Push the flat rings (Fig. 76 /3) over all the staples.
► Pull and rotate the staples by 90° (vertical position). The staples (Fig. 76 /2) are closed.

Handling cover

Fig. 77 Rear wall / tarpaulin cover open

1 Rear wall, rolled up
2 Hook
3 Retraining strap

Opening

► Open securing elements Part 1 and 2.
► Roll up the rear wall (Fig. 77 /1).
► Wrap the retaining strap around the tarpaulin cover (Fig. 77 /3).
► Hook it into the hook (Fig. 77 /2).

Closing

► Release the retaining strap from the hook.
► Roll off the tarpaulin cover.
► Close securing elements Part 1 and 2.

Slot-in slats (in U-profile)

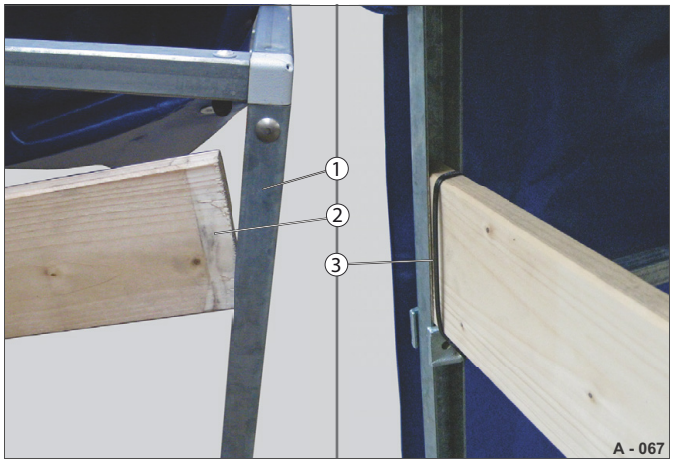


Fig. 78 Tarpaulin cover (e.g. HA)

1 Post U-profile
2 Slat
3 Cable tie

The rear slat is positioned and secured on the longitudinal side braces.

Insertion

► Lay the slat (Fig. 78 /2) from above into the U-profile of the posts (Fig. 78 /1).
► Insert the slat until the connection points for the side longitudinal supports.
► Secure them against jumping out using cable ties (Fig. 78 /3).

Removal

► If applicable, undo the cable ties.
► Remove the slat from the U-profiles on the posts.

Slot-in slats (in roofbow pockets)

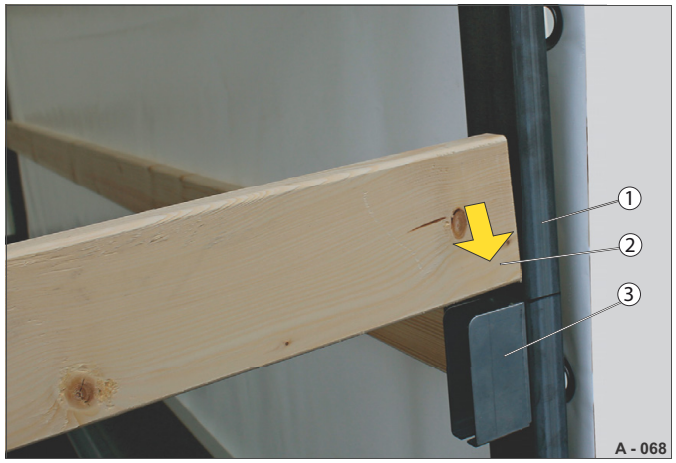


Fig. 79 Insert slot-in slat (e.g. HT)

1 Posts
2 Slat
3 Roofbow pocket

The slats are removable cross struts on the roofbow frame.

Insertion

► Lay the slat (Fig. 79 /2) from above into the roofbow pockets (Fig. 79 /3) of the posts (Fig. 79 /1).
► Secure them against jumping out using cable ties.

Removal

► If applicable, undo the cable ties.
► Remove the slat from the roofbow pockets.

Fig. 80 Example: Trailer open

1 Slat inserted

► Before closing the tarpaulin, check that all the slats (Fig. 80 /1) are securely inserted in the roofbow pockets.

Fastening rope (optional)

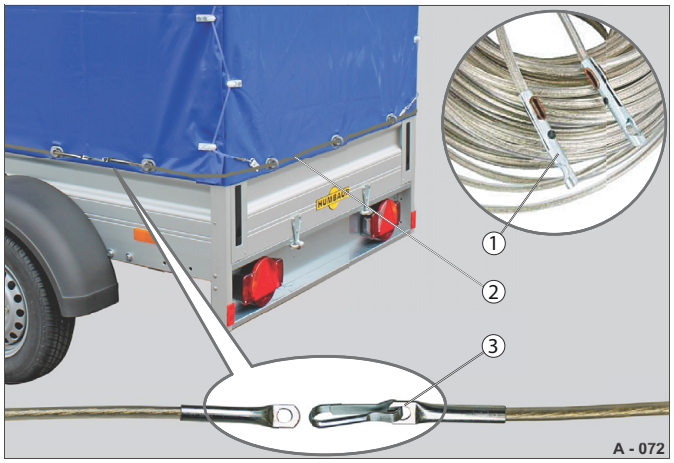


Fig. 81 Fastening rope as anti-theft device

1 Rope end fastener
2 Fastening rope
3 Rope ends

► Feed the fastening rope (Fig. 81 /2) through all closed staples.
► Connect the two rope end fasteners (Fig. 81 /1) to each other.
► If applicable, use a secure lock such as a shackle lock.

Tarpaulin cover and ramp wall

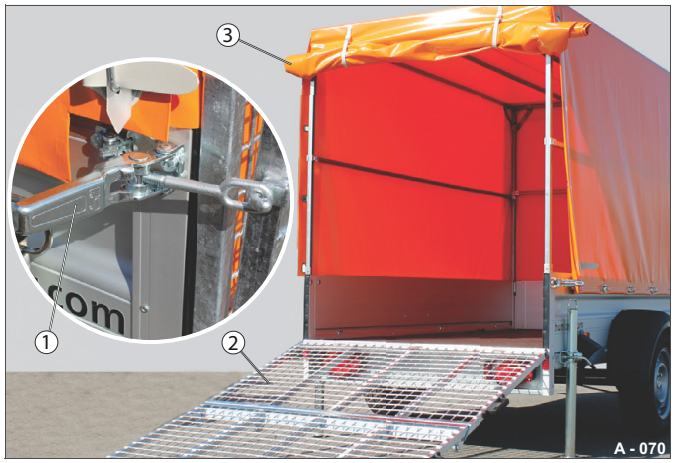


Fig. 82 Tarpaulin cover open, ramp wall folded down

1 Ramp wall connection
2 Ramp wall
3 Rear wall / tarpaulin cover

Instructions for operating the ramp wall can be found in the respective operating manual part 2.

Opening

► Open the ramp wall locks (Fig. 82 /1) -see “Handling locks” on page 106.
► Carefully fold down the ramp wall (Fig. 82 /2).
► Open the rear wall (Fig. 82 /3) see “Handling cover” on page 124.

Fig. 83 Tarpaulin cover closed (driving position)

1 Tarpaulin cover
2 Ramp wall

Closing

► Close the tarpaulin cover (Fig. 83 /1) - see “Handling cover” on page 124.
► Fold up the ramp wall (Fig. 83 /2).
► Close the ramp wall locks (Fig. 82 /1) - see “Handling locks” on page 106.

Tarpaulin cover with side sliding tarpaulin

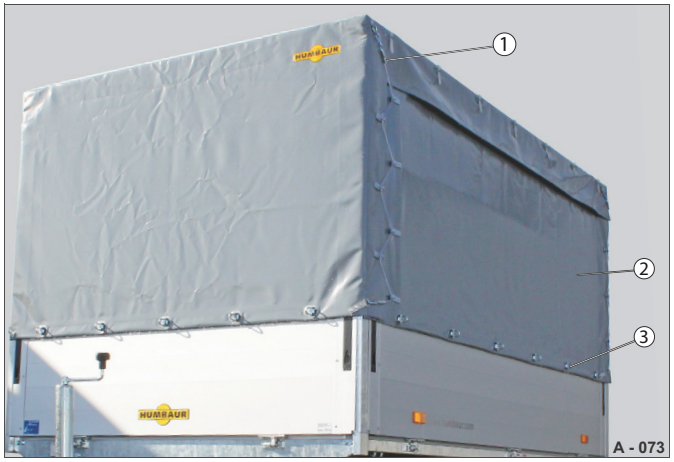


Fig. 84 Tarpaulin cover / sliding tarpaulin closed

1 Securing element Part 1 (throwing rope)
2 Sliding tarpaulin
3 Securing element Part 2 (staples)

Releasing

► Open the securing element Part 1 (Fig. 84 /1) - see “Securing element Part 1” on page 123.

► Open the securing element Part 2 (Fig. 84 /3) - see “Securing element Part 2” on page 124.

Fig. 85 Rear wall / sliding tarpaulin open

1 Tarpaulin

Opening

► Push the tarpaulin (Fig. 85 /1) open to the front.

Fig. 86 Drop sides folded down

1 Slat insert
2 Drop side

► Release and open the drop sides (Fig. 86 /2).

► Remove the slot-in slats if necessary (Fig. 86 /1).

Closing

► Close and lock the drop sides.

► Insert the slot-in slats.

► Close the rear wall of the tarpaulin cover.

► Push the side tarpaulin closed.

► Close the tarpaulin cover with the securing elements Part 1 (throwing rope) + Part 2 (staples).

Tarpaulin cover with Edscha cover

Fig. 87 Closed tarpaulin cover

Fig. 88 Open rear wall

Fig. 90 Slide open roof

How to handle the Edscha cover and the associated warning signs can be found in the manufacturers documents. This can be found on the Internet at www.edschaTS.com.

Fig. 89 Unlock roof

Fig. 91 Cover open

– Cover that slides all the way up.
– Easier loading / unloading process e.g. using a forklift.

Wood / aluminium cover

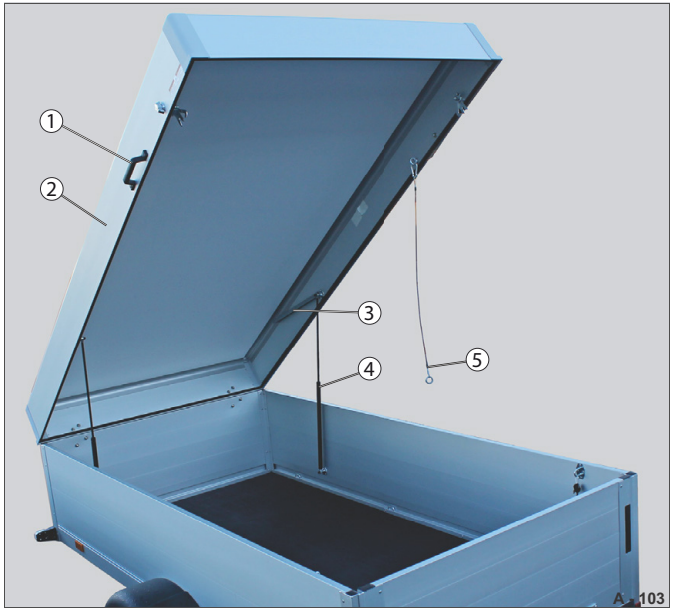


Fig. 92 Cover attached at front

1 Handle
2 Lid
3 Piston retainer
4 Gas strut
5 Pull strap

– Transport protected from weather / theft etc.

– Internal height of wood/aluminium cover is 185 mm.

It may only be installed by specialist personnel.

Pay attention to the safety information and instructions on handling the wood / aluminium cover in the respective operating manual part 2.

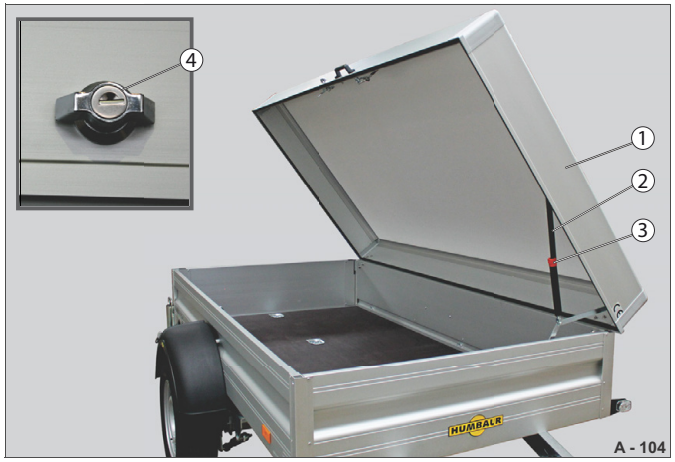


Fig. 93 Cover attached at side

1 Lid
2 Gas strut
3 Piston retainer
4 Lock, locked + closed

CAUTION

Faulty gas strut!

Where a gas strut is leaking/worn, the cover may fold down on its own - risk of being hit!

► When operating the cover, ensure that it does not fold down by itself.

► Secure the gas strut with the piston retainer.

► Have any faulty/worn gas struts replaced by a specialised workshop.

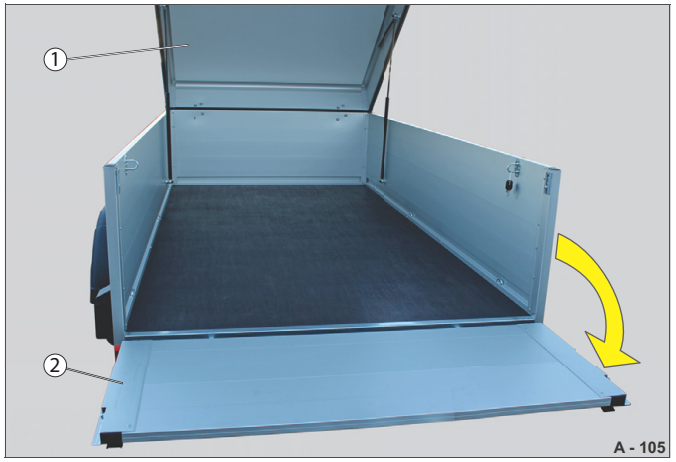


Fig. 94 Loading process - from rear

1 Cover open
2 Drop side folded down

WARNING

Driving with cover open / unlocked!

The cover can spring open while driving and be torn off/ deformed - risk of accident!

► Do not drive with the cover open/half-open.

► Before driving off, check that the cover is properly closed and locked.

CAUTION

Operating the cover!

You may catch your hands/body in the cover or bump your head while folding the cover down.

► Do not allow the cover to fall shut on its own.

► Use the handle to operate the cover – do not reach over the closing edge or into the transmission linkage.

► Use the pull strap to close the cover and hold it firmly by the handle.

Handling bicycle stand

Fig. 95 Mounted bicycle stand

1 Rail
2 Bicycle stand
3 Lateral bracing

– Possible to mount 1 to 3 bicycle stands.
– Function: Transport bicycles securely.

Transporting bicycles only permitted using a bicycle carrier!

WARNING

Overloading the bicycle stand!

The bicycle stand could break and the bicycle could fall off - risk of accident!

► Observe the maximum load capacity.

Fig. 96 Secure bicycle

1 Rotary handle, lockable
2 Bracket support
3 Frame

Retrospective fitting / removal of bicycle stand possible.
Is attached by lateral bracing on rail.

Comply with / read installation instructions from bicycle stand manufacturer.

Fig. 97 Bicycle mounted / secured

1 Bicycle
2 Belt
3 Adjustable support

Attaching bicycle

► Adjust the adjustable support (Fig. 97 /3) to fit the size of the bicycle.
► Lift the bicycle (Fig. 97 /1) onto the bicycle stand. If necessary, use steps or ladder.
► Secure the bicycle frame with the bracket support (Fig. 96 /2).
► Screw the rotary handles (Fig. 96 /1) tight.
► Lock the rotary handle - as anti-theft device.
► Secure both tyres with a belt (Fig. 97 /2).

Motorcycle stand

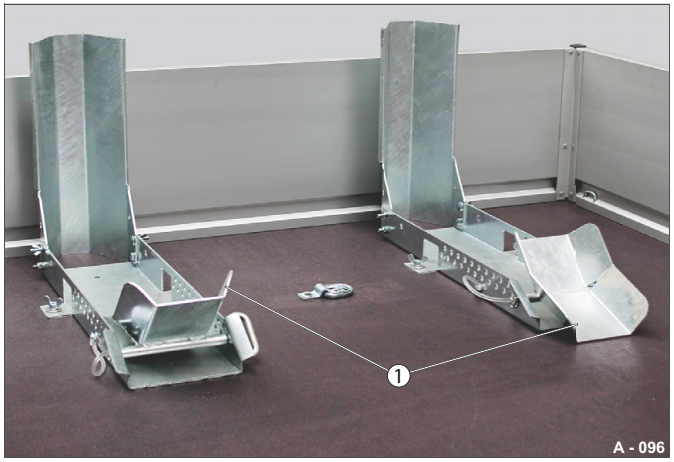


Fig. 98 Two motorcycle stands (example)

1 Drive-up ramp (example)

– Possible to mount 1 to 2 motorcycle stands.

– Function: Transport motorcycles securely.

Transporting motorcycles only permitted using a motorcycle stand!

CAUTION

Handling motorcycle stands!

Fingers could be crushed when adjusting / folding down the stand.

► Keep your fingers away from the swivel range of the contact plate and the drive-up ramp.

► Use .

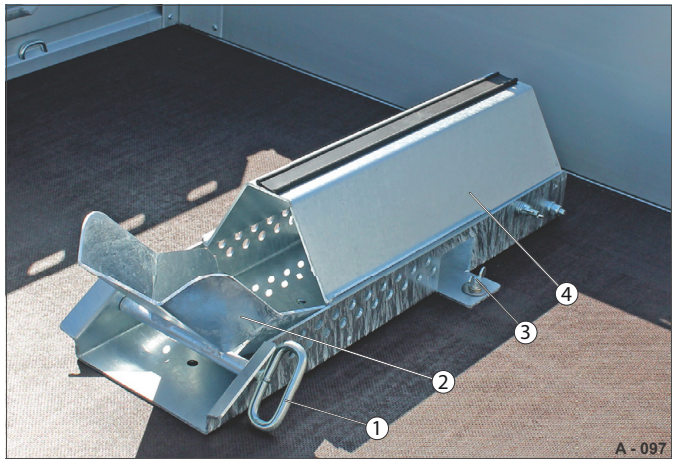


Fig. 99 Motorcycle stand folded down

1 Plug pins
2 Loading ramp
3 Screw connection with wing nuts
4 Contact plate

Retrospective fitting / removal of motorcycle stand possible.
Is attached on the cargo bed by screwing through with wing nuts (Fig. 99 /3).

Do not drill into the chassis!

Read and observe the assembly instructions.

Fig. 100 Motorcycle stand folded out / secured

1 R-clip
2 Wing nut
3 Drive-up ramp (as rocker)

Folding out / securing

► Release the contact plate (Fig. 99 /4) and fold it upwards.

► Secure it with the wing nuts (Fig. 100 /2).

► Adjust the drive-up ramp (Fig. 100 /3) according to the wheel size of your motorcycle - position in the corresponding slot.

► Secure the drive-up ramp with the plug pins. (Fig. 99 /1) and R-clip (Fig. 100 /1).

Cover net

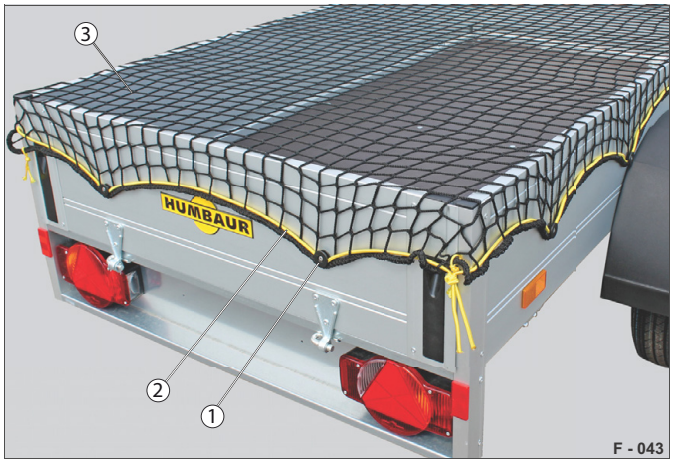


Fig. 101 Cover net secured

1 Round button
2 Elastic cable
3 Cover net

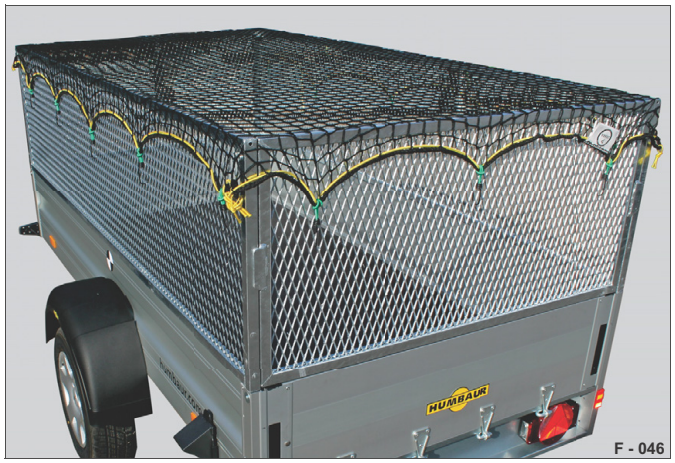


Fig. 102 Example: Steel mesh extension

Fig. 103 Application example

– Covers light garden waste / loose materials, e.g. leaves, small branches, wood chip, grass, paper, cardboard etc.
– Secure against falling / flying out.
– Cover net is tensioned across the drop side or drop side extensions and is secured with an elastic cable.
– In various sizes.
– Trailer with round buttons fitted in the factory: Startrailer, Steely.

Read and observe the assembly instructions.

With a steel mesh attachment, the cover net is attached to the cord with hooks.

Only use the cover net with closed drop sides / trailer bodies. It is not there to secure the drop sides.

The cover net / elastic cable may not have any tears.

CAUTION

Driving with cover net not completely secured!

The cover net could come loose and fly off when driving. The load could be stirred up / thrown out - accident risk!

► Use the cover net to wrap around the drop sides / extensions and secure it well.

Attaching cover net

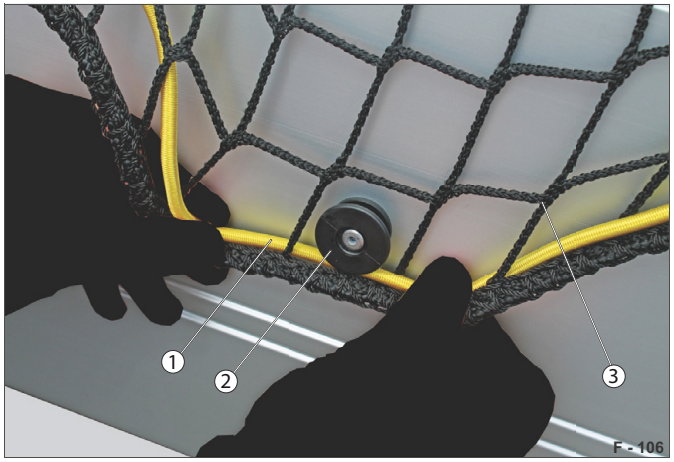


Fig. 104 Secure cover net

1 Elastic cable
2 Round button
3 Cover net

Tensioning / securing

► Place the cover net over the drop sides / extensions.
► Tension the elastic cable (Fig. 104 /1) around the round buttons in turn (Fig. 104 /2).
► Make sure that the cover net goes around the corners - if necessary re-tension the elastic cable.

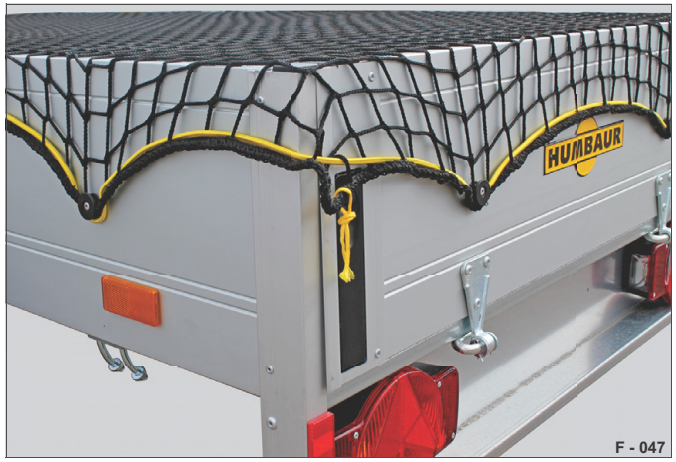


Fig. 105 Cover net tensioned

Removal

► Pull the elastic cable off all the round buttons in turn.
► Remove the cover net from the drop sides / extensions.

Removing / stowing cover net

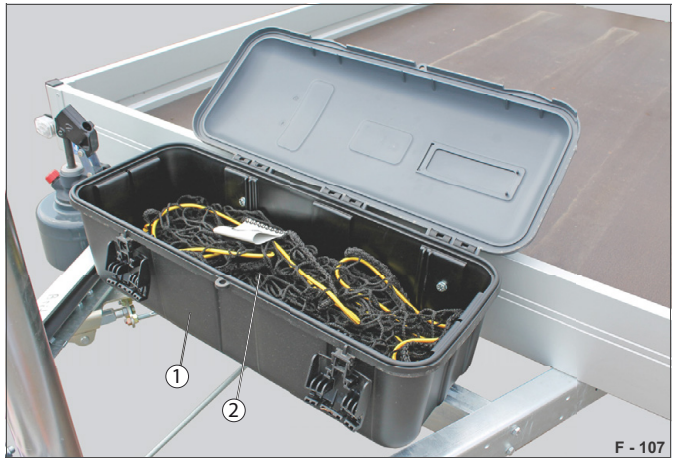


Fig. 106 Stowing cover net

1 Toolbox
2 Cover net

Stowing away

► Allow a wet cover net to dry first if applicable.
► Fold the cover net up and stow it e.g. in the toolbox - see “Toolbox” on page 99.

6 Electrical system

Electrical supply

Fig. 1 Electrical connection on towing vehicle (car)

1 Socket

The socket (Fig. 1 /1) on the towing vehicle must be suitable for the plug on the trailer - if necessary, an adapter can be used.

All of Humbaur trailers have 12 V safety lighting and a connector for the electric systems fitted as standard.

Design variants

Depending on the trailer model, the following plugs could be installed:

– 7-pin according to (DIN ISO 1724)

– 13-pin according to (DIN 72570, ISO 11446)

Trailers up to a total weight of 750 kg (unbraked / without rear lights) have a 7-pin plug.

Braked trailers with a total weight of more than 750 kg have a 13-pin plug with 8 of the contacts assigned.

It can only be warranted that the lighting system will work perfectly if the contacts are clean / not deformed and not worn.

7-pin plug according to (DIN ISO 1724)

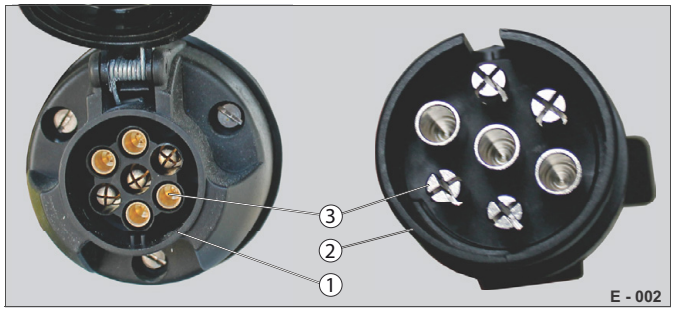


Fig. 2 7-pin plug (only STEELY)

1 Socket on towing vehicle
2 Plug on trailer
3 Contacts

WARNING

Damaged plug connections

Damaged, torn, porous plug connections can cause malfunctions - risk of accident!

► Regularly check the contacts for foreign bodies / water ingress as well as wear / deformation.

► Maintain the contacts (Fig. 2 /3, Fig. 3 /3) in the plug connections with contact spray if applicable.

► Clean dirty plug connections.

► Have faulty, torn or worn plug connections replaced by a specialist workshop.

► Open the lid of the socket on the towing vehicle.

► Unwind the cable from the tow bar.

► Connect the plug (Fig. 2 /2) on the trailer to the socket (Fig. 2 /1) on the towing vehicle.
Make sure that the cable is not pulled too tightly. The cable needs room to move when cornering.

► Make sure that the free length of cable does not drag on the ground - if necessary, wind the cable around the tow hook on the towing vehicle.

► Check that the plug fits firmly in the socket.

13-pin plug according to (DIN ISO 11446)

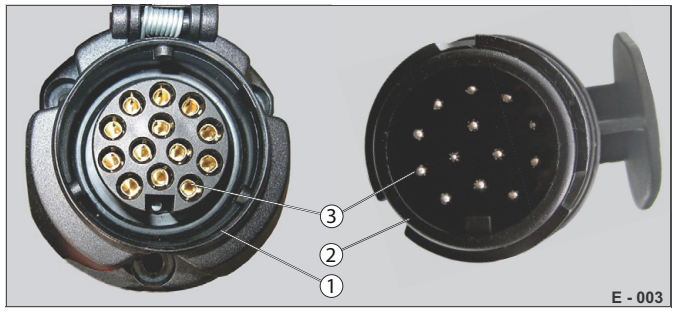


Fig. 3 13-pin plug

1 Socket on towing vehicle
2 Fully configured plug
3 Contacts

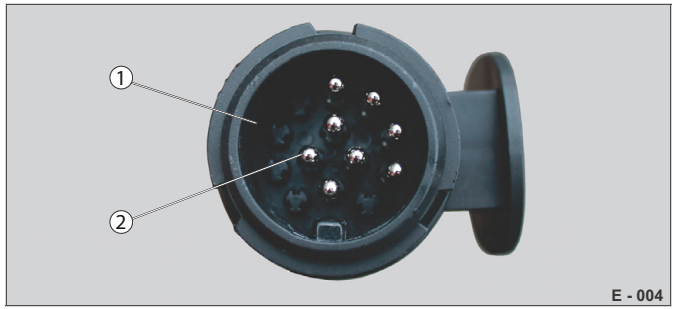


Fig. 4 Plug with 8 pins configured

1 13-pin plug
2 Contact configuration (8x)

The 13-pin plug (Fig. 4 /1) with 8 contacts configured is used as standard for braked trailers.
The fully configured 13-pin plug (Fig. 3 /2) is used on vehicles with a battery for electrical hydraulics.

► If applicable, check the contact configuration (Fig. 4 /2) on the towing vehicle.

Cable / parking socket

Cables are fed to the drawbar and are held in place by clamps.

The plug is parked in the parking socket on the drawbar or on the coupling respectively.

WARNING

Damaged / torn cable connection

Damaged, torn, worn, porous cable can impair the function or even cause the lighting system to fail - risk of accident!

- ► Before setting off and when parking the trailer, check that the cables are properly fed through to the drawbar (without any extreme bends).
- ► Do not leave the cable on the ground when parking - carefully wrap it around the drawbar.
- ► Do not pull on the cable itself - only pull on the plug.
- ► Regularly check the cable and its routing under / on the chassis / drawbar for damage and wear.
- ► Never try to repair damaged cable yourself.
- ► If necessary, replace missing clips / cable ties.
- ► Maintain the electric cabling as required with a damp cloth and silicone spray.

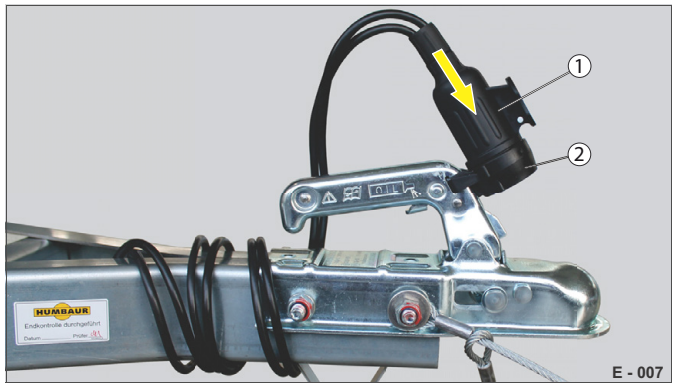


Fig. 5 7-pin plug parked

1 7 pin plug
2 Parking socket - plastic

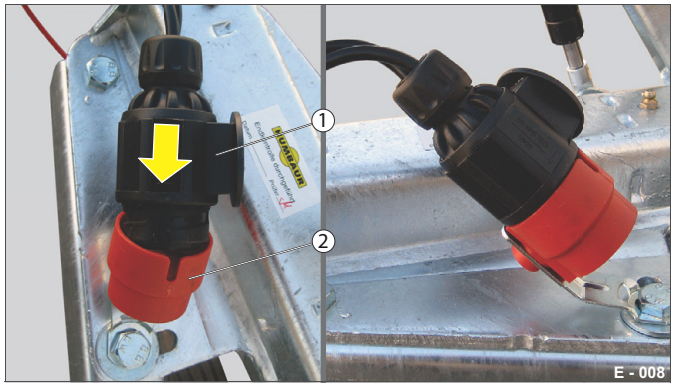


Fig. 6 13-pin plug parked

1 13 pin plug
2 Parking socket - plastic

- ► Disconnect the plug connection from the towing vehicle.
- ► Plug the plug (Fig. 5 /1, Fig. 6 /1) into the parking socket / parking bracket (Fig. 5 /2, Fig. 6 /2).
  Make sure that the plug is firmly in the parking socket - twist it in slightly.

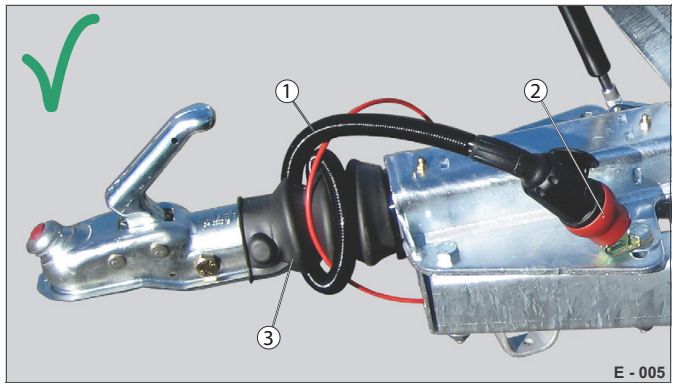


Fig. 7 Cable duct

1 Cable with protective pipe
2 Parking socket
3 Rubber sleeve

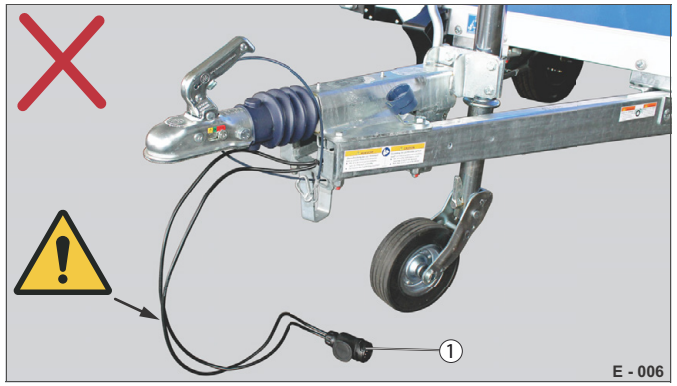


Fig. 8 Cable incorrectly positioned

1 Cable / plug

The cable / the plug may not lay on the ground / floor.

- ► Carefully wind the cable (Fig. 7 /1) around the drawbar / rubber sleeve (Fig. 7 /5) - when doing so, make sure you do not pull on the cable.

Adapter plug

Fig. 9 Test device plug (13-pin)

Your towing vehicle can have a 7-pin or a 13-pin socket (depending on the vehicle).

You have the option of checking the contact assignment with a test device plug (Fig. 9).

To make the electrical system of your towing vehicle compatible with that of the trailer, you can use an adapter if required.

There are the following options:

– 7- to 13-pin adapter
– 13- to 7-pin adapter

Pay attention to the respective installation instructions for the adapter plug.

Have any retrospective conversion of your trailer plug connection checked by qualified specialist personnel.

Fig. 10 Adapter from 13 to 7

1 contacts 13-pin
2 contacts 7-pin

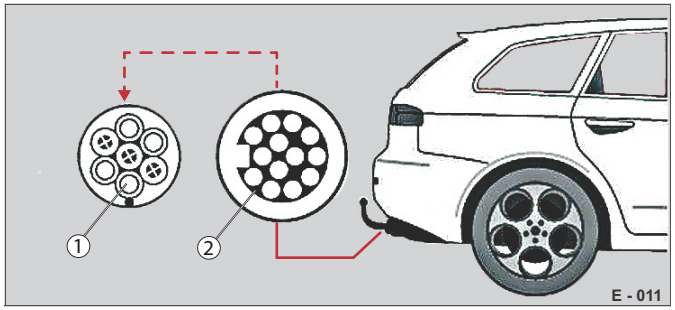


Fig. 11 Conversion:
13-pin socket to 7-pin socket

1 outlet, 7-pin
2 inlet 13-pin

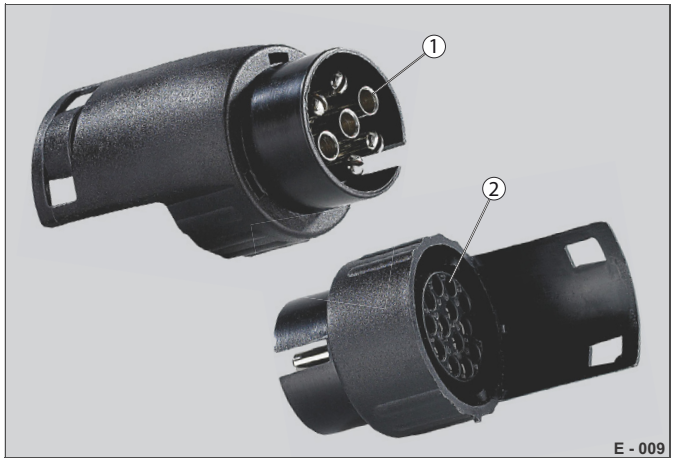


Fig. 12 Adapter from 7 to 13

1 contacts 7-pin
2 contacts 13-pin

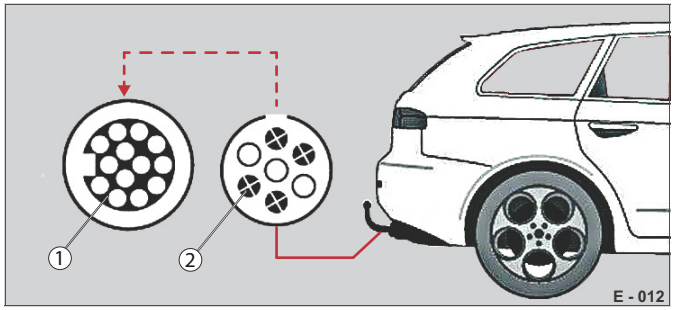
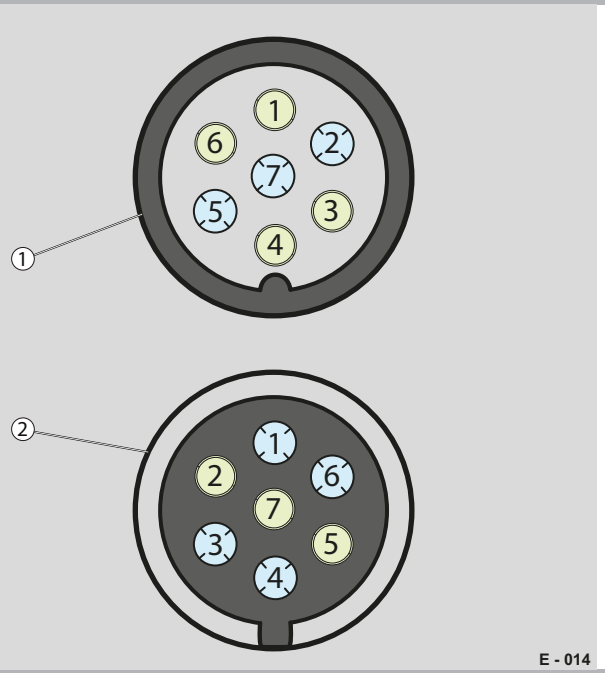


Fig. 13 Conversion:
7-pin socket to 13-pin socket

1 outlet, 13-pin
2 inlet 7-pin

7-pin plug connection

Tab. 1 DIN ISO 1724 - 12 V

Pin	Function	Name	Cross-section	Colour	Figure / arrangement
1	Left indicator	**L**	1.5 mm²	Yellow	
2	Rear fog light	**54g**	1.5 mm²	Blue	
3	Ground for contacts 1 - 7	**31**	2.5 mm²	White	
4	Right indicator	**R**	1.5 mm²	Green	
5	Tail light right	**58R**	1.5 mm²	Brown	
6	Brake lights	**54**	1.5 mm²	red	
7	Tail light left	**58L**	1.5 mm²	Black	

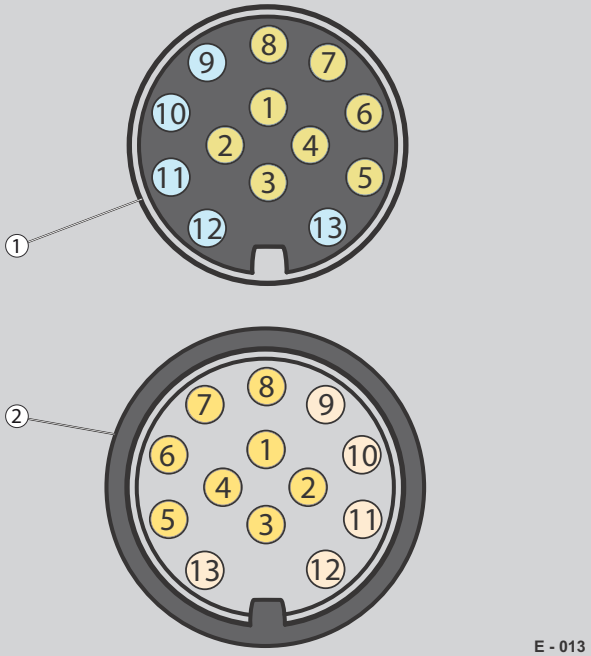
1) Socket on car
2) Plug on trailer

13-pin plug connection

Tab. 2 DIN 72570 / ISO 11446 - 12 V

Pin	Function	Name	Cross-section	Colour
1	Left indicator	**L**	1.5 mm²	Yellow
2	Rear fog light	**54g**	1.5 mm²	Blue
3	Ground for contacts 1 - 8	**31**	2.5 mm²	White
4	Right indicator	**R**	1.5 mm²	Green
5	Tail light right	**58R**	1.5 mm²	Brown
6	Brake lights	**54**	1.5 mm²	red
7	Tail light left	**58L**	1.5 mm²	Black
8	Reversing light	**1**	1.5 mm²	Grey / pink
9*	Continuous plus power supply (only with coupling attached in the factory)	**4**	2.5 mm²	Brown / blue / orange
10*	Charge cable (empty)	**6**	2.5 mm²	Brown/red
11*	Ground for electric circuit no. 10 (empty)	**3**	1.5 mm²	White / black / blue
12	Trailer detection (empty)	In the plug, contact no. 12 is connected to contact no.3 to inform the towing vehicle whether the trailer is connected		
13	Ground for electric circuit no. 9 (only with coupling attached in the factory)		2.5 mm²	White / red

Figure / arrangement



1) Socket on car
2) Plug on trailer

Deviations in the colours of the wires for contact 9, 10, 11 and 13 can occur.

If you have any problems with the electric system, contact a car dealer or a specialist workshop.

Humbaur GmbH will not accept any liability or costs for consequential damage to the electric system of the towing vehicle and / or the trailer caused by incorrect configuration or reconfiguration of the contacts on the plug.

Additional information for 13-pin plug configuration

9* Continuous current

► Under no circumstances clamp contact no. 10 to contact no. 9 in the plug.
This could cause damage to the towing vehicle or the control electronics in the towing vehicle.

This contact is **not** configured in the plug!

The contact is only configured on the car socket if the car coupling is supplied with the car.

10* Charging lead

► Only use contacts no. 10 and 11 for the charging current - according to DIN ISO 11446.

Normally this contact is **not** configured in the car socket!

If these are not already installed/connected in the connector of the towing vehicle, the appropriate connections must be fitted.

The charging lead should be connected to the battery via an isolating relay as soon as the ignition is switched on and the engine is running.

11* Ground electric circuit for charging lead

► Under no circumstance connect contact no. 11 (ground charging current) to contact no. 13 (ground continuous current).

Normally this contact is **not** configured in the car socket!

The two earthing wires must be insulated on the trailer side.

Trickle charge

Towing vehicles without a socket according to DIN ISO 11446 do not normally have a cut-off relay.

The result of this is: Damage to the car starter battery or electronics as well as deep discharge of the starter battery.

If the charging line is connected correctly according to DIN ISO 11446, then the supply battery of the trailer that is connected via the charging line to the 13-pin socket on the towing vehicle is kept charged.

► Please note this is primarily a trickle charge and not a full charge of the supply battery.
If only short distances are travelled, the charging time may not be enough for a trickle charge.

The cross-sections the cables in most towing vehicles (cars) are too small to completely charge the supply battery. The output of the alternator is usually insufficient to fully charge an additional supply battery in the trailer.

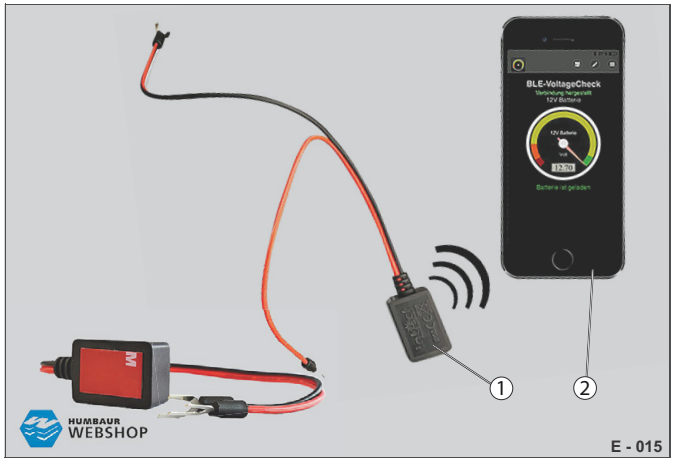


Fig. 14 Tester

1 Battery Guard
2 Smartphone

NOTICE

Discharged / low trailer battery!

The trailer battery can cause faulty motor-starting relays in the towing vehicle.

► Check the power of the battery at regular intervals.
► Fully charge the battery via an external battery charger.
► Maintain the power of the battery via a trickle charge in the event of prolonged disuse.

► Check the charge status of the battery e.g. with a Battery Guard (Fig. 14 /1).
► Connect the contacts to the positive / negative terminal of the battery.
► Download the “IntAct Battery-Guard“ app on your smartphone.
► Check the charge status by means of Bluetooth.

Rear light assemblies

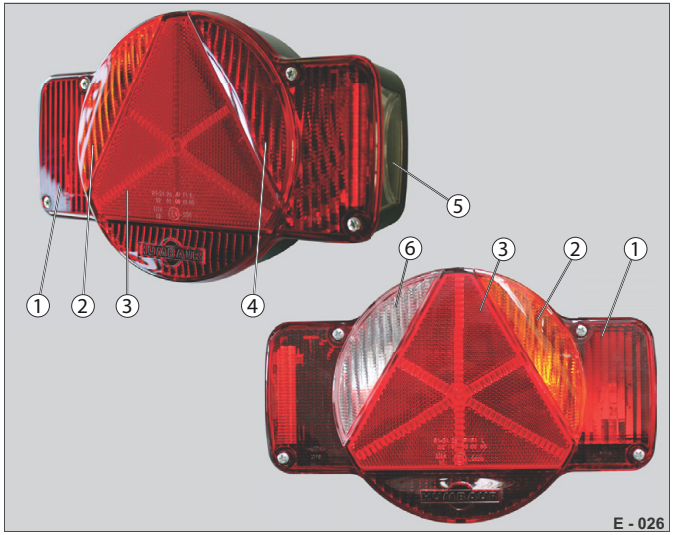


Fig. 15 Humbaur multifunctional lighting

1 Brake light (red)
2 Indicator light / indicator (orange)
3 Triangular retroreflector (red)
4 Fog light - left version
5 Numberplate light (white)
6 Reversing light (white) - right version

The Humbaur GmbH multifunctional light can be used universally.

The multifunctional light is available in horizontal and vertical design.

WARNING

Faulty rear light assemblies / side lights, marker lamps / position lamps!

Road users are not able to see the vehicle properly - risk of accidents!

► Make sure that all the lighting works on the trailer before driving off.

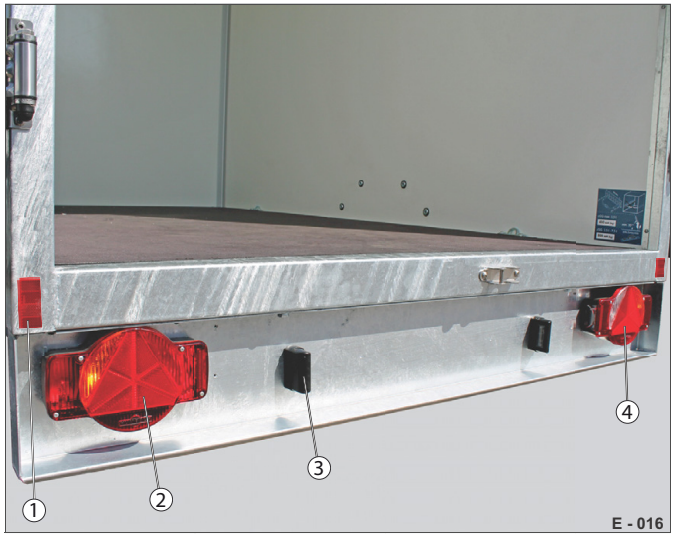


Fig. 16 Lighting / marking on the rear

1 Retroreflector / reflector (red)
2 Multifunctional light, left version
3 Number plate lights, separate
4 Multi-function light, right version

► Check that the lights are all there, all around the trailer.
► Check them for damage and make sure that they work.
► Replace faulty lamps / retroreflectors.
► Have faulty lamps, torn / brittle electric cables replaced by a specialist workshop.

Maintenance of external lights see “Electrical system” on page 171.

Fig. 17 Multifunctional light vertical, left

1 Marker light (red, white)
2 Multi-function light, left version (vertical)
3 Number plate lights, separate
4 Multi-function light, right version (vertical)

Fig. 18 Multi-function light, vertical, right version

Clearance / Side / Marker lights

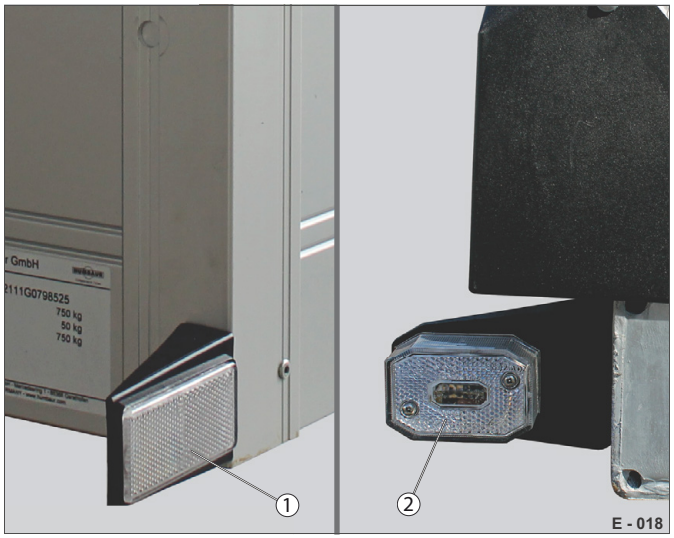


Fig. 19 Clearance / side lights at front

1 Reflector (white) front
2 Side lights (white) front

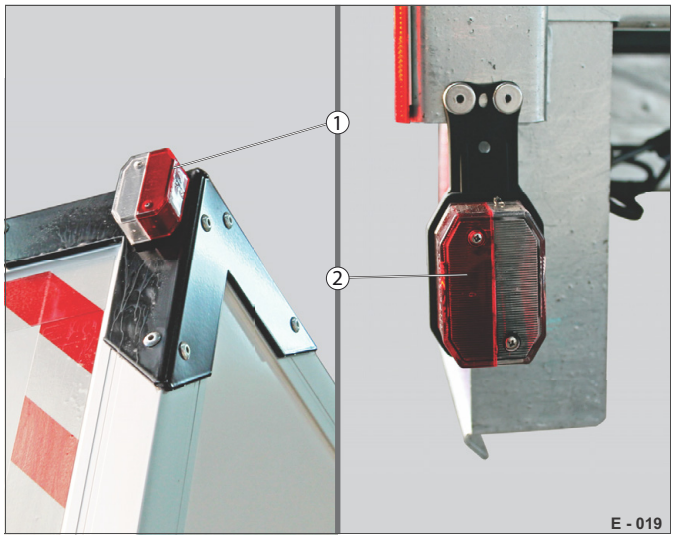


Fig. 20 Clearance / side lights at rear

1 Marker light (red, white) top
2 Marker light (red, white) bottom

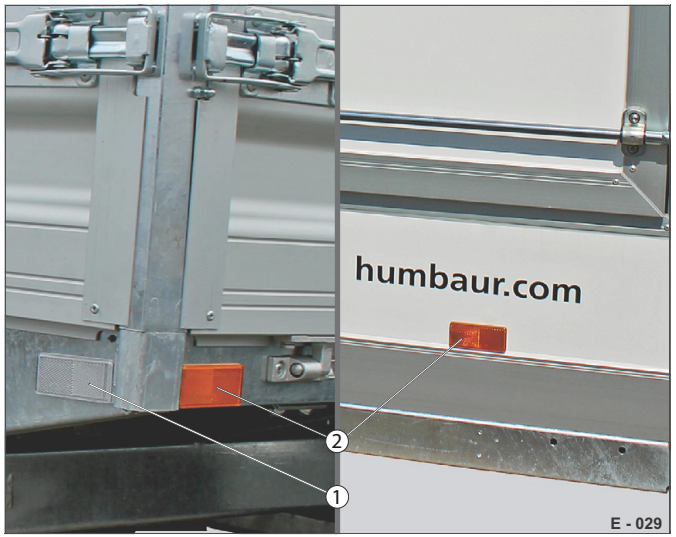


Fig. 21 Side reflectors

1 Reflector (white) front
2 Reflector (orange) side

Fig. 22 Side marker lights at side

1 Marker light (orange) side

Mains connection

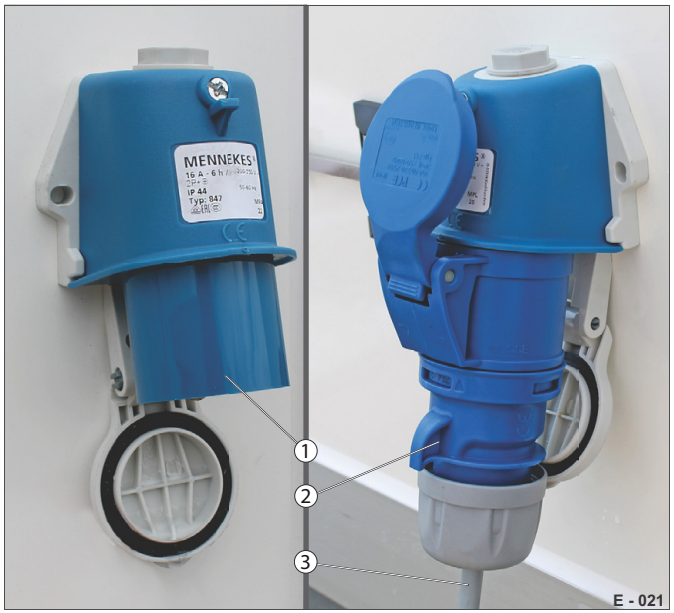


Fig. 23 External mains connection

1 Mains connection (16A-6h / 220 - 250 V AC / 2P+E / 50+60 Hz)
2 Mains plug (3 plug contacts)
3 Adapter cable (2.5 m long) with Schuko plug

The operator is responsible for complying with power supply! The power supply may only be provided using corresponding suitable mains plug and mains connecting cable.

The connecting cable (H07RN-F / cross-section 2.5 mm^2 / max. 25 m long) may only be connected to the mains plug by a qualified electrician.
An adapter cable (Fig. 23 /3) with a pre-assembled mains plug (Fig. 23 /2) is available as an option.

Further information on 230 V power supply can be found in the respective operating manual part 2 e.g. Box trailers.

Fig. 24 Power distributor box

1 Circuit breaker
2 Potential equalisation / earthing

Maintenance work on the power distributor box may only be carried out by a qualified electrician.

Portable units must be checked every 12 months to make sure that they are safe - according to DIN VDE 0100-717!

Switch the power supply off prior to carrying out work on the electric system.

Ensure that nobody else switches on the power supply.

DANGER

Shock hazard / short-circuit hazard!

When working on the electric system, there may be hazardous voltage or a short circuit in the electric system - risk of fire!

► Do not carry out any work yourself on the electric system.

► Have maintenance and repair work carried out by a qualified electrician.

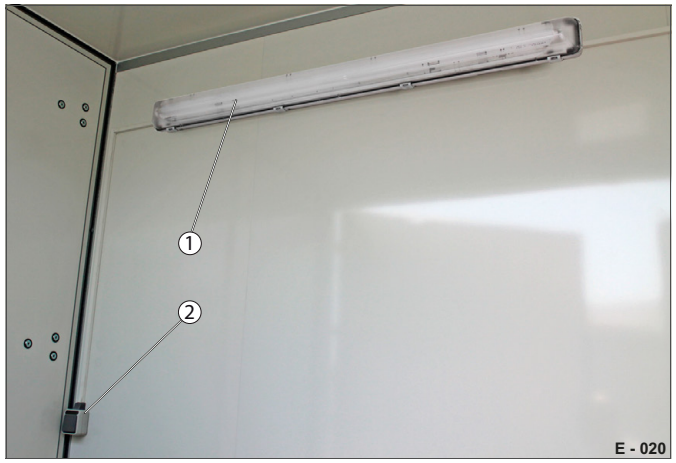


Fig. 25 Example: Interior light 230 V

1 Linear light
2 Light switch

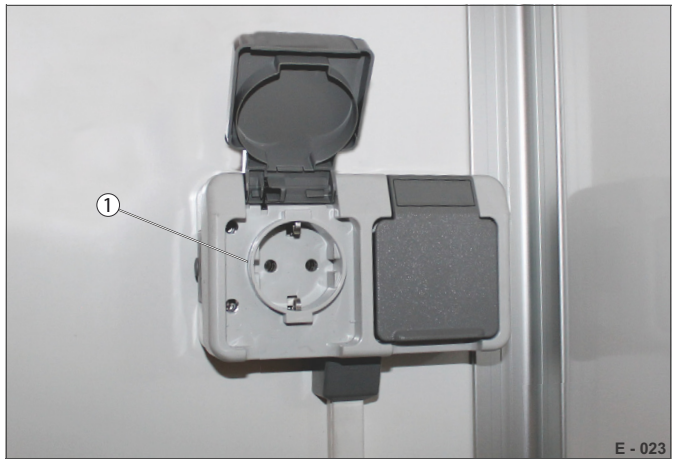


Fig. 26 Example: Interior sockets

1 Twin Schuko socket

7 Testing, care and maintenance

Maintenance / Repair

Duty to repair

– Regular visual check / inspection of trailer and components looking for damage, dirt, wear.
– Functional inspection of trailer and the individual components.
– Regular lubrication on wear parts and repair of individual components.
– Readjusting / tightening loose screw / clamp connections.
– Repair of worn, faulty, safety-relevant components by qualified specialists in a specialist workshop.

As the user of the trailer, there is only a limited amount of maintenance you can carry out. Certain maintenance work may only be carried out by trained and qualified personnel!

Intended use

The following duties are part of the user's / operator's obligations:

– Complying with the maintenance and repair work as specified by the manufacturer.
– Regular care / cleaning of your trailer removing dirt / foreign bodies.
– Regularly presenting your trailer for technical examination / inspection.

Not complying with the maintenance instructions could invalidate or reduce the product liability or warranty from the manufacturer!

Trailers must be inspected by a competent / qualified specialist to ensure they are safe to operate as required, but at least once a year.

Proof of the HU/SP

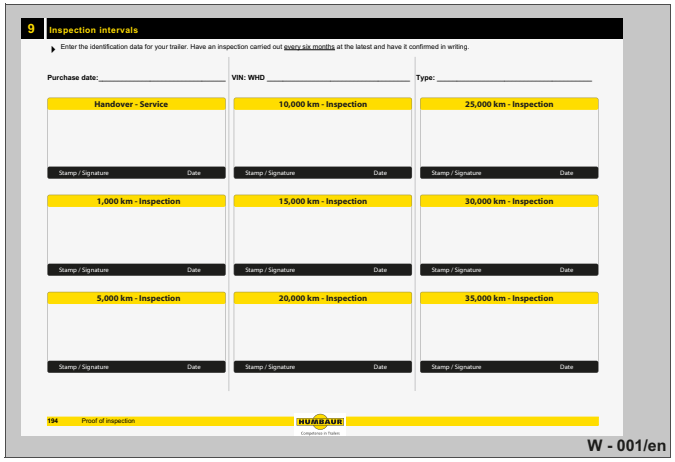


Fig. 1 Proof of inspection
(in the operating manual Part -1 - General)

HU = General inspection
SP = Safety inspection

► Enter the implemented HU/SP in the proof of inspection (Section 29, sub-section 12 of the StVZO (German Licensing Regulations)).
► Keep the latest inspection report (HU) and the latest test record (SP) at least until the next inspection / test (Section 29, sub-section 10 of the StVZO).
► Keep the inspection log book as proof until the vehicle is finally taken out of service (Section 29, sub-section 13 of the StVZO).

Maintenance of axles / wheels

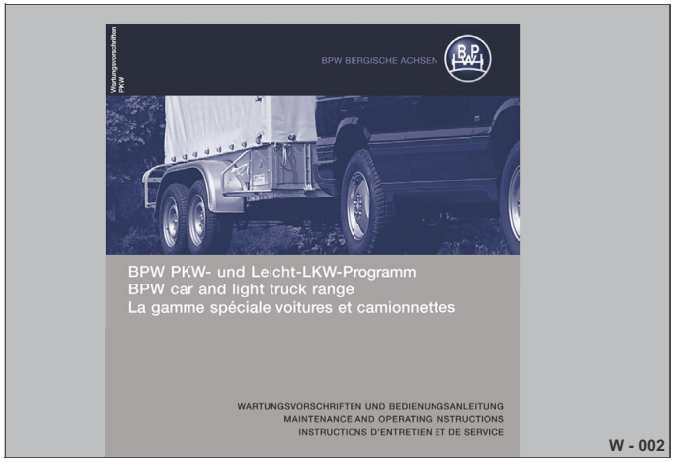


Fig. 2 Example: Operating instruction manual for axles

► Carry out the prescribed visual inspections and maintenance work or have them carried out by qualified specialist workshops.
► Have the inspections documented in the service booklet.

Safety components

All important mechanical components must be inspected and maintained by specialist personnel at regular intervals for safety reasons.

In general, this includes:

- Axles
- Brakes
- Overrun device
- Wheels / tyres
- Screw connection of load-bearing components, e.g. drawbar, axle connection
- Supports
- Attachments, such as e.g. cable winch, gas struts, wheel shock absorbers
- electric systems / lights
- Hydraulic system (manual, electric)

We recommend you keep to inspection intervals of 6 months (however min. 1x per year).

The accident prevention regulations and environmental protection guidelines must be complied with when carrying out all maintenance work.

Damaged and non-functioning trailer parts must be exchanged for original spare parts of Humbaur GmbH.

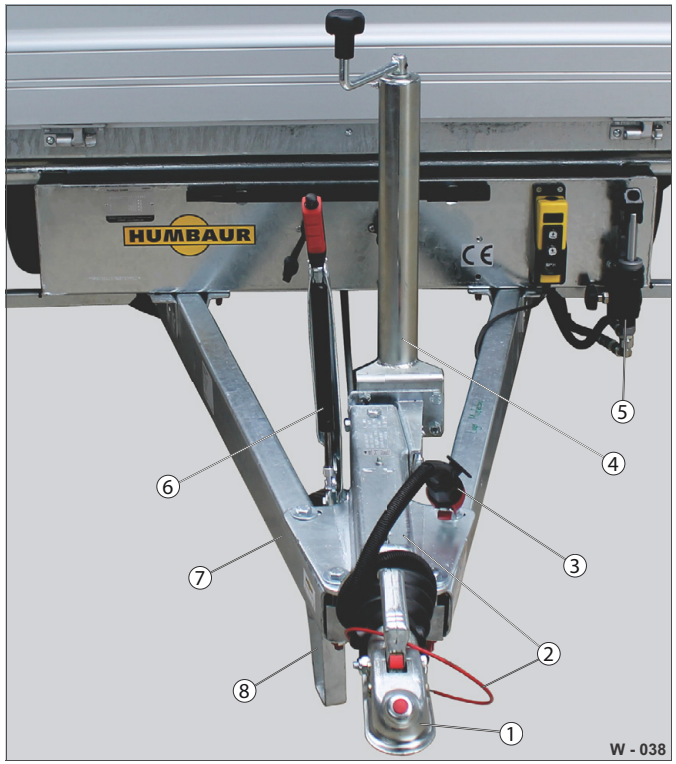


Fig. 3 Safety components

1 Ball head coupling
2 Overrun hitch / safety cable or arrester cable
3 Electrical plug connection
4 Jockey wheel
5 Hydraulic system
6 Hand brake
7 Drawbar
8 Support bracket

Fig. 4 Safety components

9 Wheels / tyres
10 Axle / wheel bearing
11 Lashing points
12 Supports
13 Rear lights / marker lights

Tightening torques

Thread	Strength 8.8	Strength 10.9
	Tightening torque	
M5	5.5 Nm	8.1 Nm
M6	9.6 Nm	14 Nm
M8	23 Nm	34 Nm
M8x1	25 Nm	37 Nm
M10	46 Nm	67 Nm
M10x1.25	49 Nm	71 Nm
M12	79 Nm	115 Nm
M12x1.5	83 Nm	120 Nm
M14	125 Nm	185 Nm
M14x1.5	135 Nm	200 Nm
M16	195 Nm	290 Nm
M16x1.5	210 Nm	310 Nm
M18	300 Nm	430 Nm
M18x1.5	340 Nm	485 Nm
M20	425 Nm	610 Nm
M20x1.5	475 Nm	980 Nm
M22	580 Nm	820 Nm
M22x1.5	630 Nm	900 Nm
M24	730 Nm	1050 Nm
M24x2	800 Nm	1150 Nm
M27	1100 Nm	1550 Nm
M27x2	1150 Nm	1650 Nm
M30	1400 Nm	2000 Nm
M30x2	1500 Nm	2150 Nm
M36	2450 Nm	3500 Nm
M36x2	2650 Nm	3780 Nm
M42	3930 Nm	5600 Nm

Tab. 1 Tightening torque general

Check screw connections

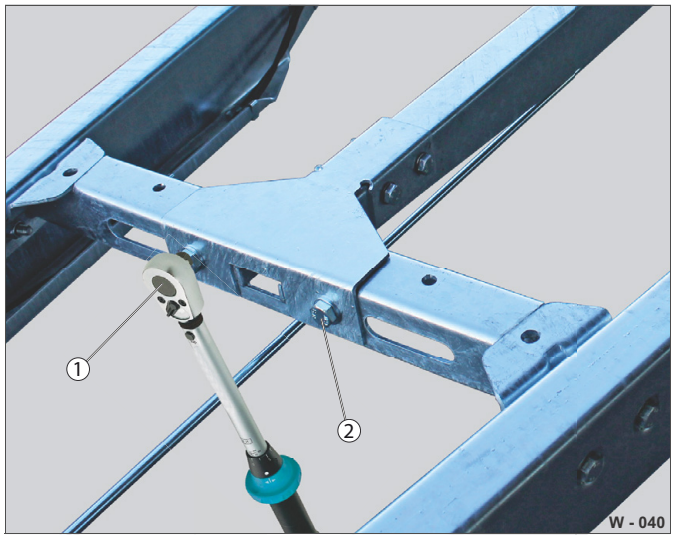


Fig. 5 Tighten screw connections

1 Torque wrench
2 Screw connection

► Use a calibrated torque wrench (Fig. 5 /1) to tighten screw connections (Fig. 5 /2).
► Set the torque wrench to the required tightening torque value.

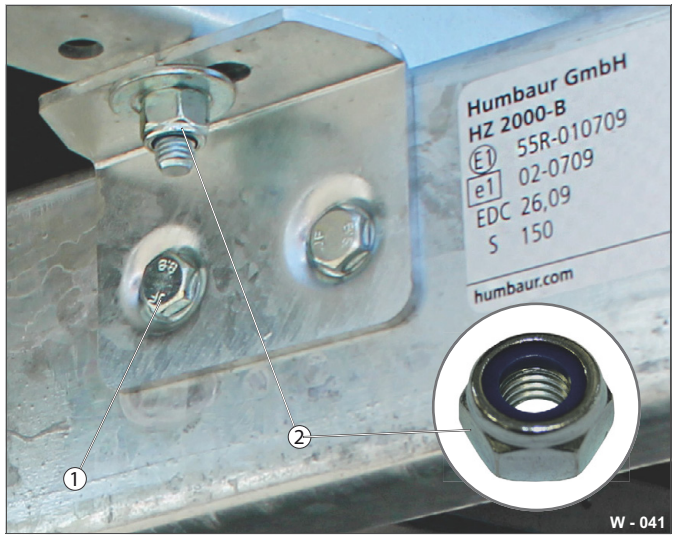


Fig. 6 Strength / design

1 Screw (specified 8.8 on the head)
2 Self-locking nut

► You will find the information on the screw connections themselves (inscription 8.8 or 10.9).
Example see (Fig. 6 /1).
► Only use self-locking nuts (Fig. 6 /2) once - the clamping effect of the plastic ring is reduced if you use it again.
► Replace self-locking nuts after unscrewing the screw connection.
► Check / tighten the screws / nuts with the tightening torques (see Table 1 on page 148).

Maintenance regime

One-off inspection / maintenance work	During repair	after 50 km	1500 km	5000 km	6 months	6 years
Wheel bolts: Re-tighten (after every wheel change as well)		X				
Tyres: Check tyre pressure		X				
Braking system: Check the function of the overrun brake (carry out braking procedure) and adjust if necessary	X		X			
Wheel / tyre combination: Check sizes installed compared to COC paper / registration certificate Part 1	X					
Lights: Check that all lights work and are present	X					
Coupling: Remeasure height of coupling head on towing vehicle and on the trailer	X					
Wheel shock absorber: check that it is present	X					
Hydraulic system: Check function / tightness	X					
Hydraulic system: Replace hoses / seals						X
Identification numbers (VIN): Compare engraved VIN with vehicle papers	X					
Manufacturer plates: Check that it is present and the information is correct	X					

Tab. 2 Maintenance table: Initial commissioning

Maintenance includes regular checks of individual components, followed by taking appropriate action.

The rhythm should be adapted to suit the user conduct.

Faulty parts on the trailer need to be replaced with original spare parts.

The following information refers to normal use of the trailer with max. 10,000 km per year.

The intervals may need to be adapted to suit your level of use and operating environment.

Regular inspection / maintenance work	after 500 km (1 month)	2000 km (3 months)	5000 km (6 months)	10000 km (12 months)
Wheel bolts: check that they are tight and if necessary, tighten with a torque wrench (after every wheel change as well)			X	
Tyres: Check tyre pressure, set to recommended pressure		X		
Tyres / Wheels / Rims: Check general condition - Measure profile depth of tyres in the middle - Have old, brittle, worn tyres replaced - Have rims that wobble / are unbalanced / faulty balanced or replaced - Replace damaged / corrosive wheel bolts			X	
Ball head coupling: Check condition for wear / damage - Carry out cleaning and lubrication work if required - Check that safety / arrester rope are present - If the ball head or coupling shell is very worn, have ball head coupling replaced			X	
Braking system: Check the function of the overrun brake (carry out braking procedure) - Clean the brake components - Lubricate the grease nipples on the overrun device - Clean and grease bearing / sliding points of brake linkage / transfer components - Check that hand brake is working, if necessary, have gas strut replaced - Check safety cable for damage and how it is routed - Check thickness of pads on brake callipers			X	
- Clean tandem offset and have adjusted if required - Check gaiter on overrun device for damage and replace if required - Check that brake mechanics are working (response threshold), check play have adjusted if required - Check that braking effect / braking torque is even - Drum brake: Check brake pads and have them adjusted if required.				X
Axle(s) / wheel bearing: - Check spring compression through load tests - Check screw connections with torque wrench - Remove any superficial damage, e.g. rust and apply rust inhibitor - Check play on wheel bearing and have it adjusted if necessary and have wheel bearing replaced if worn - Check seals for damage / cracks and replace if necessary				X
Lighting system / electric systems: Check that all internal / external lights are present and work properly and replace any faulty bulbs - Check plugs, cables for damage and make sure they work and replace if necessary			X	

Regular inspection / maintenance work	after 500 km (1 month)	2000 km (3 months)	5000 km (6 months)	10000 km (12 months)
Supports: Check jockey wheel, support legs are working and are stable. - Lubricate jockey wheel at grease nipple and moveable parts - Check screw connections are tight - Have worn tyre on jockey wheel / deformed jockey wheel replaced				X
Wheel shock absorber: Check for oil leakage and for firm fit - Replace faulty wheel shock absorbers in pairs - Check attachment points / screw connection for firm fit and tighten if required				X
Gas struts: check whether present, that they are working and tightly fitted			X	
- Check gas struts for deformation of piston rod and replace if necessary - Check gas struts on ramp doors / cover for slackening and if necessary replace in pairs				X
Hydraulic system: Check function / tightness - Check oil level and top up if necessary - Check that pump lever is present and not damaged, order a new one if necessary			X	
- Check hydraulic hoses for cracks, aging, breakage, stone dents and replace if necessary - Clean connection / bearing points for telescopic cylinder and lubricate - Check electric-hydraulic system (remote control) for damage, ensure it is working				X
Battery: Check for external damage / acid leaking out - Recharge a weak battery.			X	
- Check charging state, recharge ability and replace faulty / old battery				X
Manufacturer signs / warning labels: Check they are present and legible - Reorder damaged / illegible signs, labels and replace			X	
Cargo bed / lashing points: Check surface of cargo bed for damage (rust, oxidation) and have repaired if necessary - Check that lashing points are present, check for damage and replace if necessary - treat wooden surface with preservative as required: linseed oil / turpentine			X	
Added structures / bodies (rail, side wall extension, H-frame, cover, roofbow frame, cover, toolbox etc.): - Check fasteners, locks, hinges work and grease as required - Check tarpaulin for tears and have repaired if necessary - Check screw / riveted connections for firm fit and tighten if required				X
Cable winch: Clean bearing points (bearing bushing, drum hub, sprocket, pulley) and grease / lubricate - Unroll wire cable and check for cracks, wear (pinching, individual broken wires) and replace if necessary				X

Tab. 3 Maintenance table: Regular intervals

Check tyres / wheels

Fig. 7 Carry out inspection

Wheels / tyres are important safety components on the trailer.

The tyres are subject to permanent wear while driving as well as to an aging process and need to be checked regularly.

They directly improve driving comfort and improve the road handling of your trailer.

The wheel size must match your type of trailer.

It may not be arbitrarily changed.

The licensed wheel / tyre sizes are entered in the EC certificate of conformity / in the COC papers for your trailer.

Fig. 8 Tyres / Technical information

1 Profile depth
2 Size
3 Max. load / tyre pressure

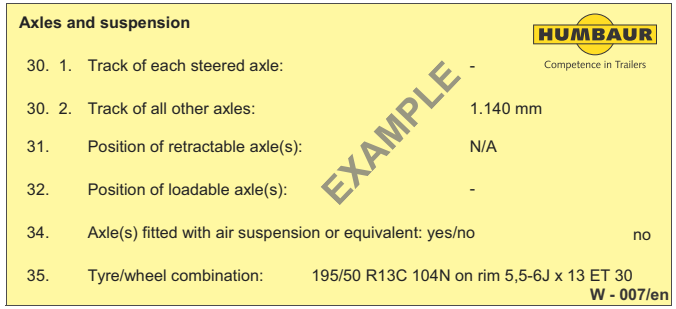


Fig. 9 Tyre / wheel combination in COC paper

35 Information on tyres / wheels fitted

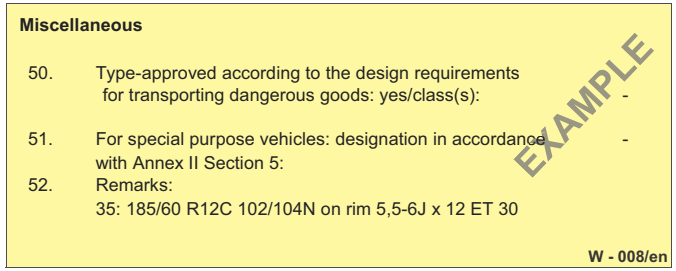


Fig. 10 Tyre / wheel combination in COC paper

52 Licensed wheel / tyre sizes

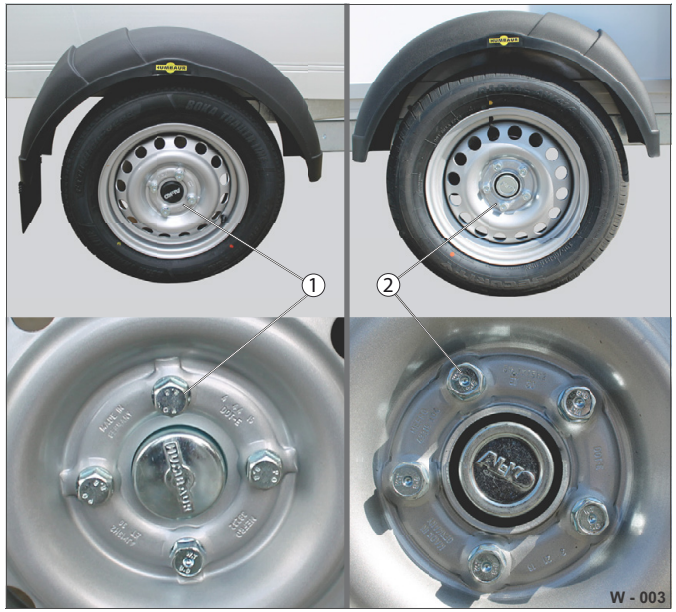


Fig. 11 Rim versions

1 Disc wheel made of steel (4-hole)
2 Disc wheel made of steel (5-hole)

The condition of the wheels is of great importance to the road and operating safety of the trailer!

Among other things, the size of the wheels determines the coupling height and has a direct effect on the road handling of the trailer!

Rule for speed 100 km/h licence:

The tyres must not be more than 6 years old. (from date of manufacture).

These need to comply at least with the speed category L = 120 km/h as well as have an adequate profile depth (> 1.6 mm).

Check rims / attachment

Fig. 12 Check rims

► Regularly carry out a visual inspection of the rims - see maintenance intervals Table 3 on page 151.

► Replace the wheels if:
- Cracks are visible
- Rim is deformed
- Bolt holes are deformed
- Significant mount of rust between rim and tyre (contact surface)
- Deformed wheel bolts

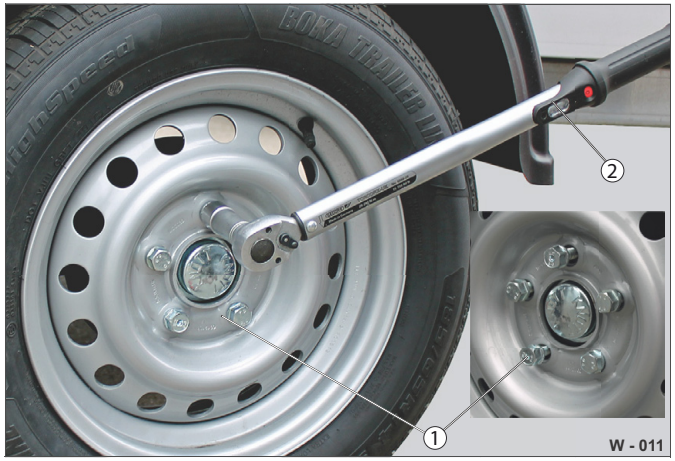


Fig. 13 Check wheel attachment

1 Wheel bolts
2 Torque wrench

⚠ WARNING

Wheel bolts could come undone!

Wheels could come undone while driving - risk of accident!

► Tighten the wheel bolts after the first 50 km and after a wheel change - diagonally.

► Regularly test that the wheels are fitted tightly using a torque wrench - see maintenance table.

Tightening torque

Rim material	Tightening torque Nm (max.)
Steel	100-110 Nm
Aluminium	120 Nm

Tab. 4 Tightening torques for wheel bolts

On newly painted or new rims, the wheel bolts need to be tightened again after 20 operating hours!

Check tyre condition

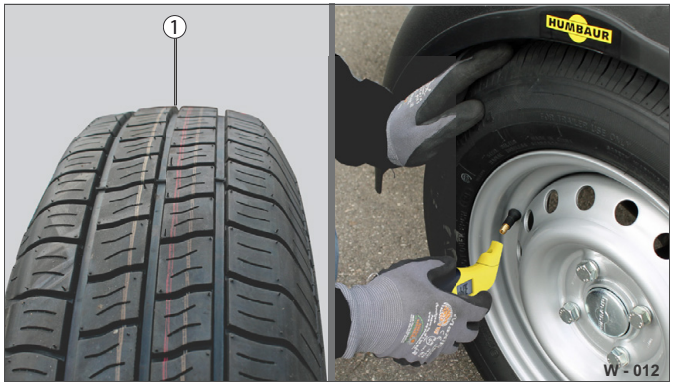


Fig. 14 Check tyre pressure

1 Profile depth (around middle of tread)

WARNING

Worn tyre profile / incorrect tyre pressure!

The tyres could burst while driving – accident risk! The braking distance increases - risk of snaking!

- ► Regularly check the tyres.
- ► Check the tyre pressure, profile depth and condition of the tyres - see maintenance table.

Even on trailers which are not used very often, the tyres are subject to the influence of the weather, such as sunshine, cold, etc. which will cause the tyres to age faster.

- ► Regularly carry out a thorough visual inspection of the tyres.
  Look out for possible cracks and foreign bodies.
- ► Replace the tyres after approx. 6 years use- over time, rubber becomes porous and brittle.
- ► Check the profile depth of the tyres around the middle of the tread (Fig. 14 /1).
  In Germany, a minimum of 1.6 mm is required.

Checking tyre pressure

Fig. 15 Tyre pressure - data

1 in bar (kPa)
2 in psi (pounds per square inch)

NOTICE

Driving with incorrect tyre pressure

The tyres will wear disproportionately.

- ► Before setting off and at the latest 14 days later, check the tyre pressure on cold tyres.

Conversion bar / psi / kPa:

1 psi = 0.0689 bar

1 bar = 14.504 psi or 100 kPa

1 kPa = 0.01 bar

- ► Check the tyre pressure on all wheels on a regular basis and before long journeys.
- ► You will find the correct tyre pressure in the information on the tyre (Fig. 15).
  If necessary, convert the information in psi to bar first.
  For orientation purposes, you will find the tyre pressure in the following table.

Tyre type	$p_{max.}$ in bar
18.5 x 8.5 - 8	3.5
145 / 80 R10 ; R13	3.0
155 R13 ; RF ; R13C	3.5
155 / 70 R12 ; R12C	6.25
155 / 70 R13	3.0
155 / 80 R13	3.0
175 / 70 R13 ; R14	3.0
185 / R14C - 8PR	4.5
185 / 60 R15	3.5
185 / 65 R14 ; R15	3.0
185 / 70 R14	3.0
195 R14C - 8PR	4.5
195 / 50 R10C ; R13C	6.25
195 / 55 R13C	6.5
195 / 60 R14	3.0
195 / 65 R14 ; R15	3.0
195 / 65 R15 RF	3.4
195 / 70 R14	3.0
195 / 70 R15C - 8PR	4.5
205 / 60 R15	3.0
205 / 65 R15	3.0
205 / 60 R15 RF	4.5

Tab. 5 Tyre pressure / tyre size

The max. tyre pressure applies for both an empty trailer as well as a fully laden trailer.

Carrying a spare wheel

Fig. 16 Spare wheel (optional)

1 Spare wheel complete
2 Spare wheel holder (screwed on)

Faulty tyres can quickly be exchanged in the event of a breakdown.

Depending on the size and weight, one or several spare wheels can be positioned on the trailer.

There are several ways to transport a spare tyre - depending on the model and equipment.

You can find out how to fit the spare wheel holder in the respective installation instructions.

WARNING

Unsecured spare wheel on the cargo bed

The spare wheel may fall off the trailer - accident risk!

► Tie down the spare wheel on the cargo bed.

On the V drawbar

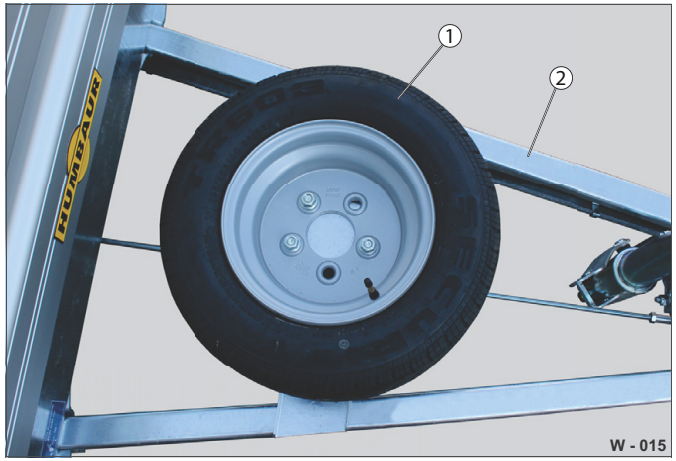


Fig. 17 Example: Spare wheel on drawbar

1 Spare wheel
2 V drawbar (extended)

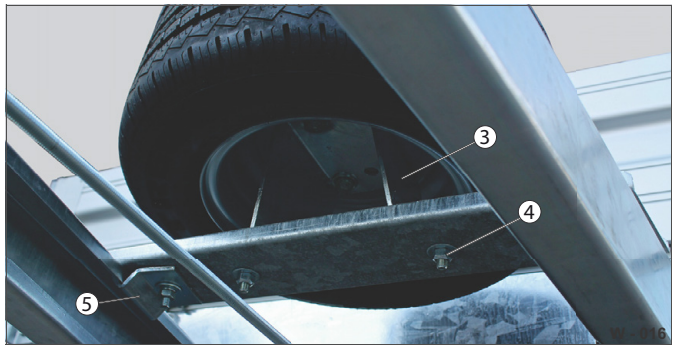


Fig. 18 Attaching a spare wheel

3 Spare wheel holder
4 Screw connection in the crossbar
5 Clamp holder

► Regularly check the screw connections (Fig. 18 /4) on the spare wheel holder (Fig. 18 /3) and the clamp holder (Fig. 18 /5) to ensure they are tight.

On the front wall (box)

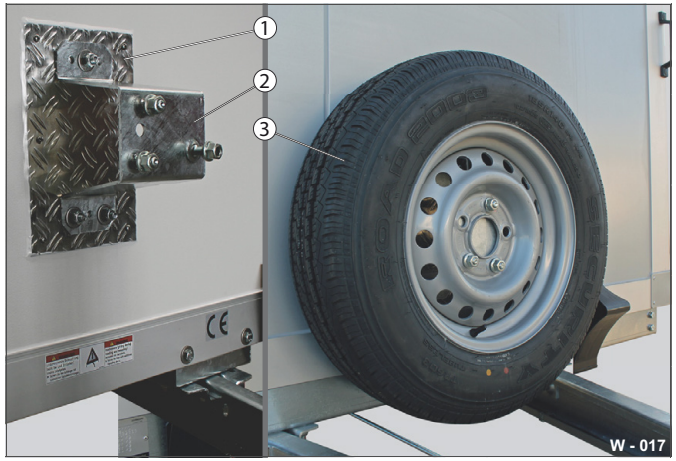


Fig. 19 Example: Spare wheel on front wall

1 External fixing plate
2 Spare wheel holder
3 Spare wheel

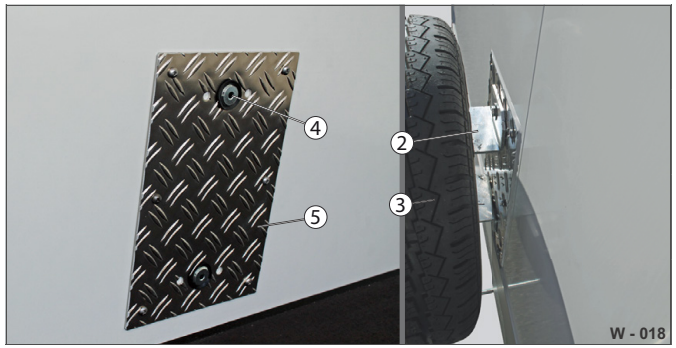


Fig. 20 Attaching a spare wheel

4 Screw connection through the wall
5 Internal fixing plate

► Check the screw connections (Fig. 20 /4) for the spare wheel holder (Fig. 19 /2) to ensure they are tight.

On the drop side

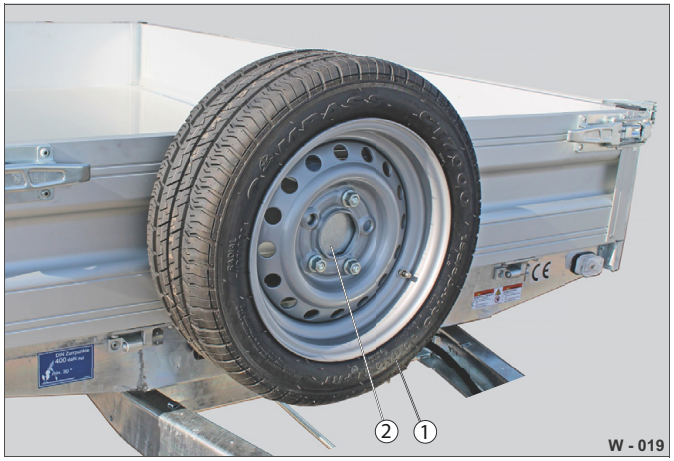


Fig. 21 Example: Spare wheel on drop side

1 Spare wheel
2 Spare wheel holder

Fig. 22 Attaching a spare wheel

3 Screw connection through the drop side
4 Drop side

► Check the screw connections (Fig. 22 /3) for the spare wheel holder (Fig. 21 /2) to ensure they are tight.

On the chassis

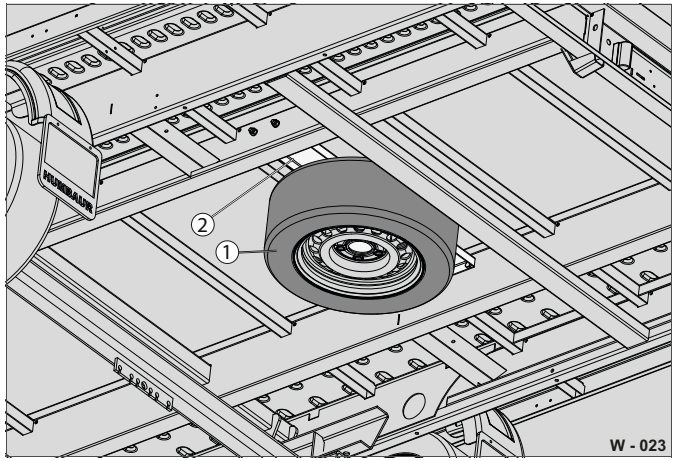


Fig. 23 Example: Spare wheel on chassis

1 Spare wheel
2 Spare wheel holder under crossbar

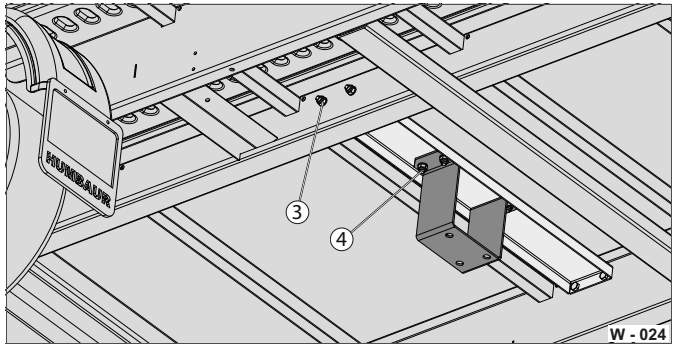


Fig. 24 Attaching a spare wheel

3 Screw connection on chassis
4 Screw connection for spare wheel holder

► Check the screw connections (Fig. 24 /3) for the spare wheel holder (Fig. 24 /4) to ensure they are tight.

Check the spare wheel

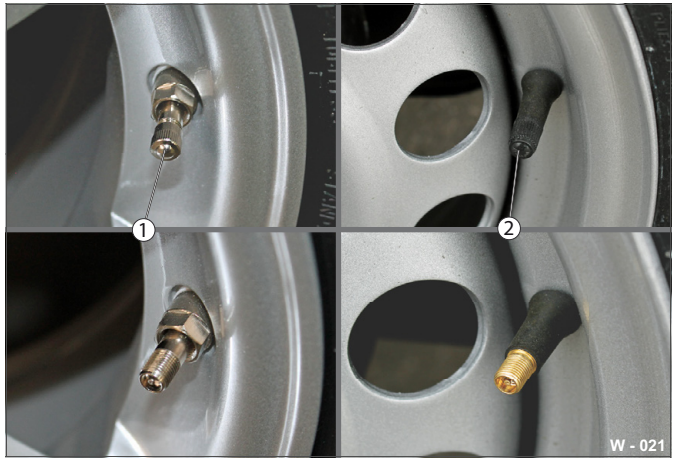


Fig. 25 Check the spare wheel

1 Valve (screwfit, on aluminium rim)
2 Valve (fixed, on steel rim)

► Tyre pressure see Table 5 on page 154.
► Regularly check the condition of the spare wheel / valve (Fig. 25 /1; Fig. 25 /2).
► Replace any lost valve caps.

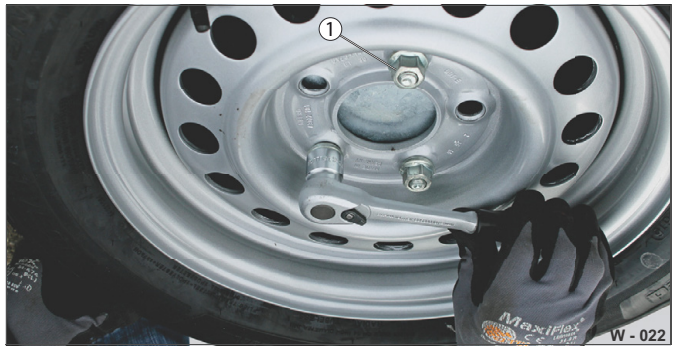


Fig. 26 Attaching a spare wheel

1 Spherical collar nuts (size 19)

► Use a torque wrench (80 Nm) to check that the nuts / screws (Fig. 26 /1) of the spare wheel holder are secure.

Safety when changing the wheel

A faulty tyre must be replaced immediately! Do not take any safety risks!

Disposing of tyres / wheels in the environment is environmental pollution and will be penalised!

To change a wheel, you will need the following tools:

- Torque wrench with suitable insert (size 19) to tighten.
- Wheel spider / wheel wrench to undo.
- Suitable lifting device (must be suitable for the weight and attachment point on your trailer)
- Support if applicable (jack)
- If applicable, a firm surface to place it on

Only use tools which work perfectly and are undamaged.

DANGER

Carelessness on the roads

When changing the wheel, you can affect the flow of traffic - risk of accident! Vehicles driving past could hit you!

► Secure the location on the road.

►  Set up a warning triangle.

► Use  ,  , and  .

WARNING

Unsecured wheels

Unsecured wheels can roll away - risk of accident!

People may be caught and dragged along.

► Secure the wheel you have removed against rolling away - lay it flat on the ground.

WARNING

Being under an unsecured trailer

The trailer could start moving, slide off the lifting device and tip over - risk of being crushed!

► Secure the trailer with wheel chocks against rolling away - lay under intact wheels.

► Before changing the wheel, make sure that the trailer is on level, solid ground.
If necessary, place a solid surface under the lifting device, such as a plank/panel of wood.

► Apply the handbrake - if available.

► Avoid being under the trailer if it is not standing firmly or if you do not have a suitable / secure lifting device.

►  Keep additional helpers away from a raised trailer which is not standing firmly.

CAUTION

Hot brakes

You can burn yourself on hot brakes when changing the wheel.

► Allow the brakes to cool off before changing a wheel.

► Use  .

Important information on changing a wheel:

- Make sure that traffic is not obstructed when changing a wheel.
- Only perform a wheel change when the trailer is empty (unloaded).
- Use the specified rim and tyre size - see COC paper.
- Adapt the tyre pressure after fitting - see Table 5 on page 154 or look for the information on the side of the tyre.
- Check the direction of rotation of the wheels.
- Use wheel chocks to secure the trailer against rolling away.
- Place the jack on firm ground or on a firm surface so that it does not sink.
- Make sure lifting device is standing firm and attach it to the lifting points.
- Carefully remove the spare wheel and secure loose wheels against rolling away - lay flat on the floor.
- Replace any damaged wheel bolts.
- Pay attention to the tightening torques of he wheel bolts - see Table 4 on page 153.

You should only change a wheel on a loaded trailer if it is not possible to unload the loaded goods!

- Make sure that the load is tied down and cannot slip.
- Check the load weight to ensure that the lifting device is capable of lifting the weight and that the axle tube will not be damaged.
- Jack up / raise the trailer with great care - observe the way it behaves and stop the process if necessary, if it becomes unstable.

Changing a wheel

Fig. 27 Secure trailer

1 Wheel chocks

CAUTION

Being under the chassis

When removing a spare wheel you could knock your head on the chassis!

► Make sure that the raised chassis is standing securely.

► Move carefully under the chassis - watch your head.

For safety reasons, the trailer should remain coupled to the car!
If the trailer is uncoupled:

Make sure that the trailer is on solid, level ground.

► If applicable, apply the hand brake and place wheel chocks (Fig. 27 /1) under intact wheels.

Fig. 28 Remove spare wheel

1 Spherical collar nut (size 19) / spare wheel holder
2 Spare wheel

► Unscrew the nuts / screws (Fig. 28 /1) from the spare wheel holder.

► While doing so hold the spare wheel (Fig. 28 /2) tight. Have a second person help you if necessary.

► Carefully lift up the spare wheel off the wheel bolts.

► Screw the spherical collar nuts onto the wheel bolts of the spare wheel holder so they cannot get lost.

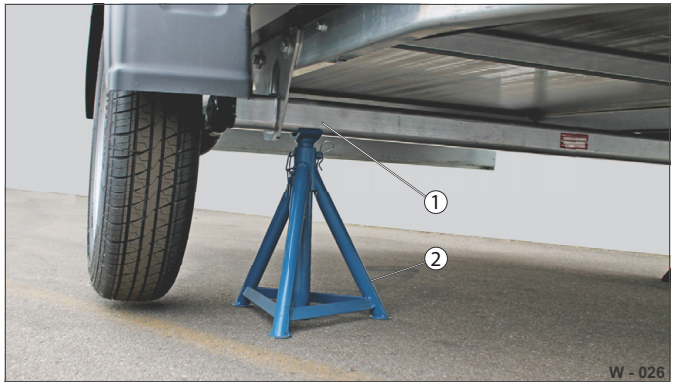


Fig. 29 Jack up / support the trailer

1 Axle tube / support area
2 Support (jack)

► Raise the trailer with an appropriate jack.

► Jack up the trailer for example with a car jack (Fig. 29 /2) in the wheel area on the axle tube (Fig. 29 /1).

Fig. 30 Pull faulty wheel off

1 Faulty wheel
2 Wheel bolts

► Screw the wheel bolts (Fig. 30 /2) of the faulty wheel (Fig. 30 /1) off.
► Lift the faulty wheel off the wheel hub.
► Secure the wheel against rolling away.
► Ensure that the wheel bolts are not deformed. Replace faulty wheel bolts.

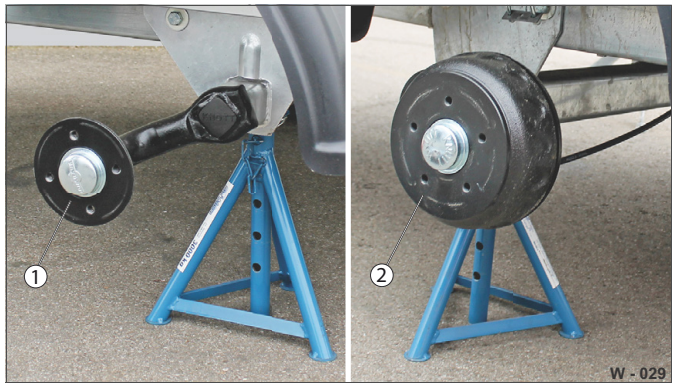


Fig. 31 Wheel hub without wheel

1 Wheel hub / contact surface (unbraked)
2 Wheel hub with drum brake

► Inspect the wheel hub / contact surface (Fig. 31 /1 or Fig. 31 /2) and remove any rust - use a wire brush.
► If necessary, apply a copper paste to the wheel hub - to protect the wheel rim from seizing up due to rust.

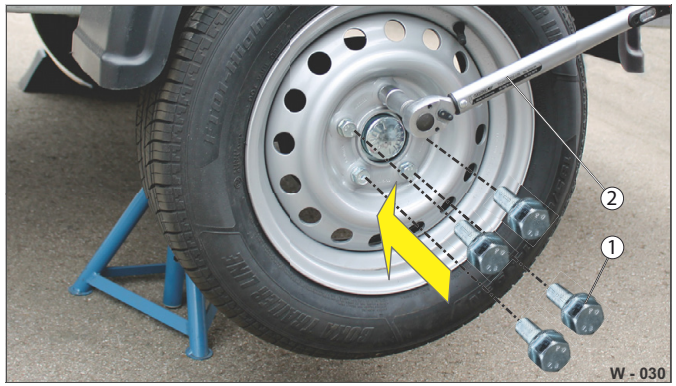


Fig. 32 Fitting spare wheel

1 Wheel bolts
2 Torque wrench

► Carefully place the spare wheel on the wheel hub.
► Screw on the spare wheel using the same wheel bolts (Fig. 32 /1) diagonally and hand-tight.
► Carefully lower the trailer.
► Tighten the wheel bolts with a specific tightening torque - see Table 4 on page 153.
► Remove the lifting device, warning triangle, toolbox, etc. Stow them away safely, e.g. in the toolbox.

Stowing faulty wheel

► Place the faulty wheel on the wheel bolts of the spare wheel holder - adhere a tightening torque of max. 80 Nm.
► Clean the surroundings if necessary, e.g. tyre remains, cleaning cloth, etc. from dirt.
► Remove the wheel chocks.
► Before setting off, carry out a general visual inspection and the departure check.

Licensed to be driven at 100 km/h

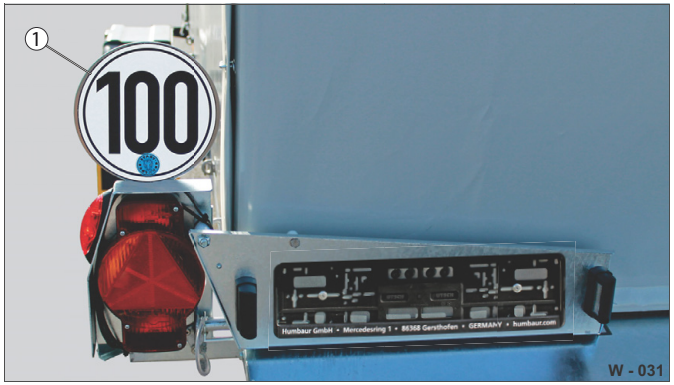


Fig. 33 Official test sticker for speed 100 km/h

1 Official test sticker 100 km/h

Your trailer can be licensed to be driven at a speed of 100 km/h in Germany, subject to conditions being met.

This then allows you to drive on motorways and dual carriageways (not single carriageways) with your trailer at max. 100 km/h.

Conditions for 100 km/h licence:

- The towing vehicle must be licensed for max. 3,500 kg permissible gross weight (zGG).
- The towing vehicle must be fitted with ABS (anti-lock braking system).
- The tyres of the trailer must be licensed for at least 120 km/h (Class L) and must be no more than 6 years old - from production date (see rim of tyre).
- You must attach a 100 km/h test label to the rear of the trailer.
- Braked trailers need hydraulic wheel shock absorbers (vibration dampers).
- Trailer needs an ASK safety coupling or the towing vehicle need a stability system that reacts to driving dynamics when towing a trailer.

- The ratio **(X-factor)** of the permissible gross weight of the trailer to the tare weight of the towing vehicle **(m Zugfzg.)** is specified:

  0.3 for unbraked trailer (up to 750 kg)
  (30 % of towing vehicle tare weight)

  1.1 for braked trailer (from 750 kg up to 3,500 kg)
  (110 % of towing vehicle tare weight)

  1.2 with anti-snaking coupling (ASK coupling)
  (120 % of towing vehicle tare weight)

Calculation formula:

zGG trailer = X x m (Zugfzg. leer)

Unbraked trailer (factor = 0.3)
Zugfzg. leer: m = 1,500 kg
0.3 x m = 1,500 kg = 450 kg (zGG Anh.)

Braked trailer (factor = 1.1)
Zugfzg. leer: m = 1,500 kg
1.1 x m = 1,500 kg = 1,650 kg (zG Anh.)

Braked trailer with ASK coupling (factor = 1.2)
Zugfzg. leer: m = 1,500 kg
1.2 x m = 1,500 kg = 1,800 kg (zG Anh.)

If the actual permissible gross weight (zGG) exceeds The calculated value, then the trailer needs to be unloaded to the permitted max. trailer load (entered in the registration certificate Part 1).

The max. drawbar load (S) of the trailer on the coupling of the towing vehicle should be approximately utilised - but may not be exceeded!

Speed 100 sign

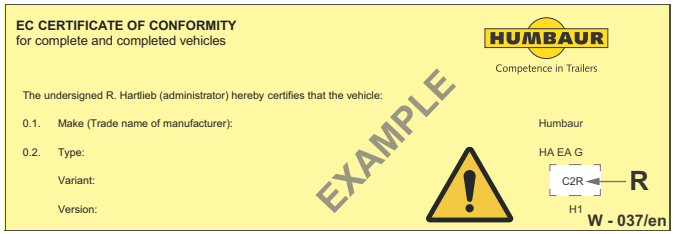


Fig. 34 COC paper (page 1) / R= wheel shock absorber

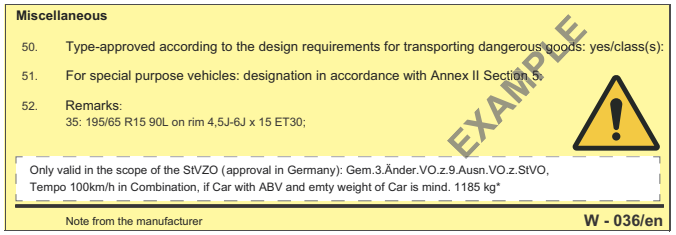


Fig. 35 on the back page (page 4)
Endorsement clause specifying the tare weight of towing vehicle

In Germany, the vehicle registration authority (Kfz.-ZB) that the vehicle is registered at is responsible for making any changes to the papers and for issuing the Speed 100 sign.

To issue the Speed 100 sign / for registration, the registration authority requires the following:

- **Trailer manufactured ex factory for 100 km/h:**
  Note specifying Speed 100 in the COC paper (Fig. 34 / Fig. 35) or confirmation from the manufacturer.

- **Trailer retrofitted for 100 km/h:**
  Expert appraisal of retrofitted trailer with wheel shock absorbers / anti-snaking coupling by TÜV or an officially recognised test organisation with a letter of confirmation.

Wheel shock absorbers

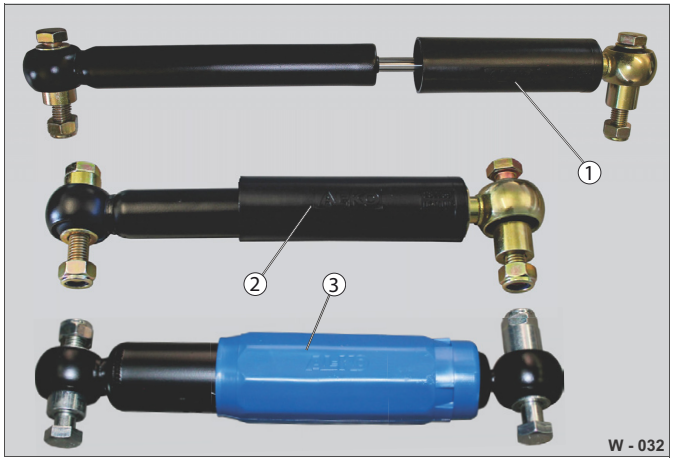


Fig. 36 Wheel shock absorbers - versions

1 Extended shock absorbers
2 Shock absorbers (universal) for medium weight class
3 Shock absorbers (octagon) for higher weight class

The wheel shock absorbers must be used according to the trailer weight - this prevents too little or too much shock absorption (trailer jolting, jumping).

Wheel shock absorbers absorb the bumps when driving your trailer. This increases the driving comfort and improve the road handling of your trailer.

The wheel shock absorbers may only be retrofitted at the attachment points provided!

Pay attention to separate assembly / installation drawing!

Installation may only be carried out with original spare parts and by specialist personnel.

Wheel shock absorber you have installed yourself need to be tested and approved by the type approval authority (e.g. TÜV, DEKRA, SGS).

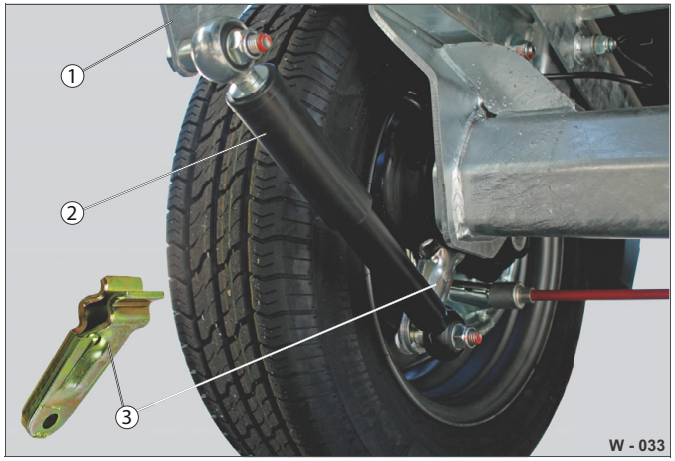


Fig. 37 Wheel shock absorber installed (version 1)

1 Angle bracket on chassis
2 Shock absorbers fitted
3 Clamping bracket, two part

WARNING

Faulty / incorrectly fitted wheel shock absorbers!

The possibility of a wheel shock absorber malfunctioning after installing it yourself can impair the road handling of the trailer - risk of accident! The connections could come loose. The damping effect would not be ensured - trailer could jolt / jump around.

- ► Only have wheel shock absorbers installed by specialist personnel.
- ► Check the wheel shock absorbers every six months for damage / oil leaks.
- ► Only replace faulty wheel shock absorbers with original spare parts.
  Recommendation: Always replace wheel shock absorbers on all wheels.

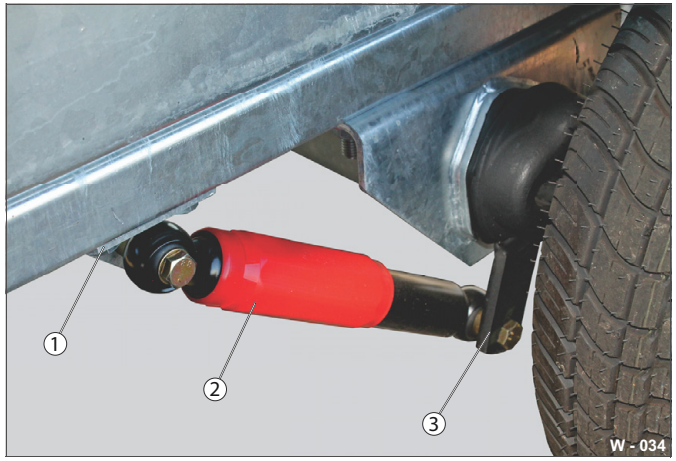


Fig. 38 Wheel shock absorber installed (version 2)

1 Bracket on chassis
2 Shock absorber (octagon) fitted
3 Lever (welded on)

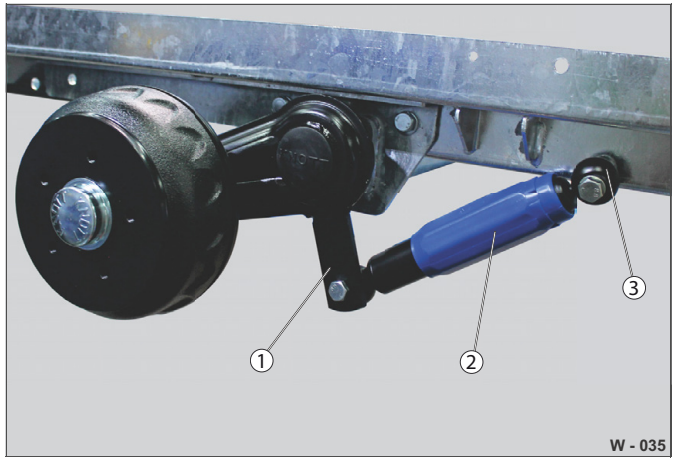


Fig. 39 Wheel shock absorber installed (version 3)

1 Lever (welded on)
2 Shock absorber (octagon) fitted
3 Attached directly to frame

Information on implementation

To lubricate / grease the components, only used the listed lubricants.

Type of lubricant:

– Multipurpose grease according to **ISO-L-XCCHB3** or
– according to **DIN 51825 - Type K** with application range: -30 °C to + 120 °C
– Oil: commercially available machine oil

The intervals for lubrication are to be adapted according to the intensity of use and degree of contamination.

WARNING

System failure due to incorrect lubrication

There are some component which must not be lubricated / greased under any circumstances. The components could then fail to work - risk of accident!

► Find out which components must not be lubricated, for example:
Friction linings of ASK safety coupling, clamping tube on prop stand, thread on wheel bolt, brake pads, etc.

CAUTION

Contact with lubricant

Lubricants can cause reactions with your skin.

► Only use approved lubricants.
► Carefully clean the grease nipple before lubricating.
► Use  ,  .
►  after working with lubricants.

Before lubricating

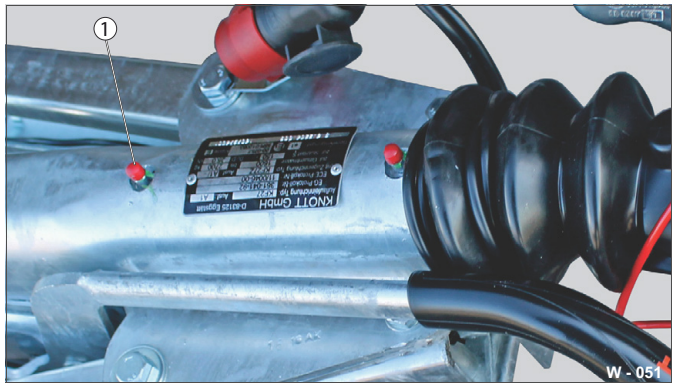


Fig. 40 Prepare grease nipple
1 Cap

NOTICE

Dirty grease nipple

Dirt could get into the bearing and cause higher wear.

Grease nipple and grease gun could be damaged.

► Clean grease nipples before lubricating.

Dirt can prevent the components from working!

► Remove all of the old grease / old oil from the lubrication point.
► Remove any foreign objects such as blades of grass, leaves or small twigs that have caught in the bearings or the spaces in between.
► If necessary, remove the cap (Fig. 40 /1) from the grease nipples.
► Clean the lubrication points / grease nipples with a clean, dry fabric cloth.

After lubricating

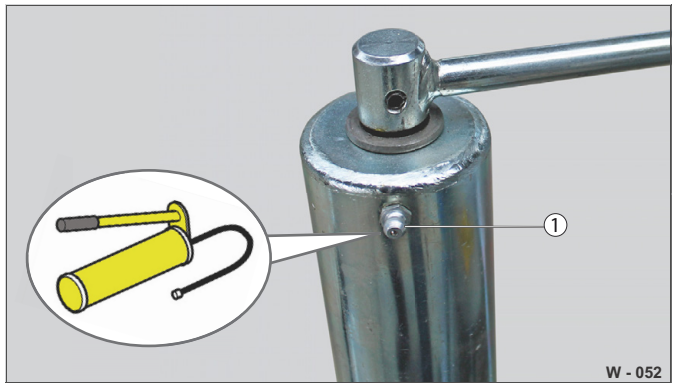


Fig. 41 Lubricating
1 Grease nipple cleaned

► Wipe of any dripping / excess grease with a fabric cloth.
► If required, close the grease nipple (Fig. 41 /1) with a cap.
► Check that the components are working properly.

Ball coupling

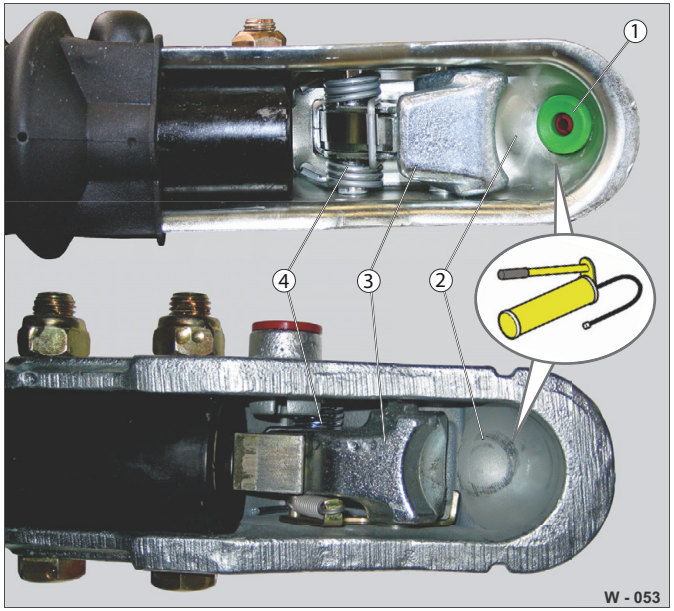


Fig. 42 Ball coupling: Bottom view

1 Safety indicator / mechanics
2 Spherical cap
3 Coupling cup
4 Spring mechanism

- ► Clean the ball head coupling on the inside as well.
- ► Check the spherical cap (Fig. 42 /2) and the coupling shell (Fig. 42 /3) for wear.
- ► If the ball head coupling shows significant signs of wear or the spring mechanism (Fig. 42 /4) is malfunctioning, have it replaced.
- ► Apply multi-purpose grease onto the spherical cap / coupling shell from below.

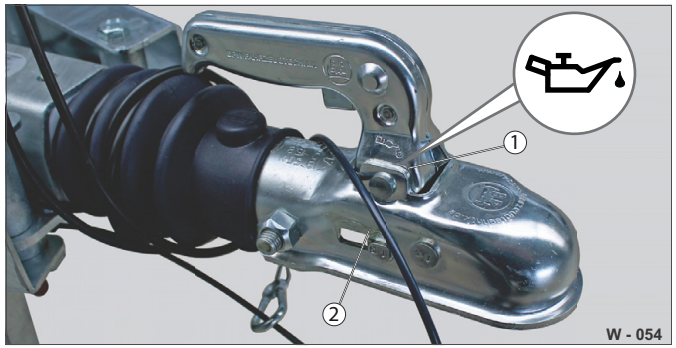


Fig. 43 braked: Top view

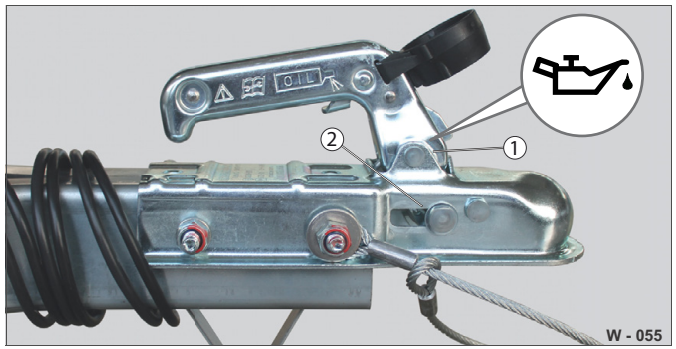


Fig. 44 unbraked: Side view

1 Oiling points
2 Lubrication / sliding points

- ► Drip some standard machine oil onto the bearings and joint areas (Fig. 43 /1 and Fig. 44 /1).
- ► Grease the lubrication / sliding points (Fig. 43 /2 and (Fig. 44 /2).

Automatic jockey wheel

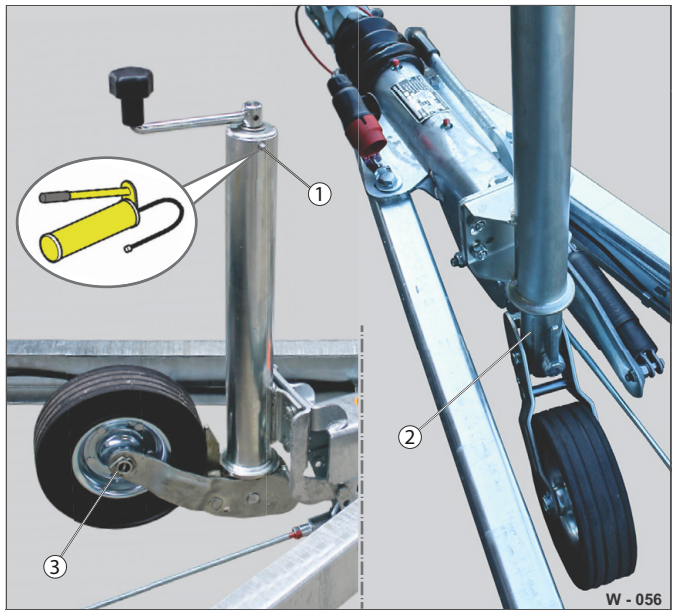


Fig. 45 Automatic jockey wheels: Lubrication points

1 Grease nipple
2 Sliding point
3 Bearing point / wheel

Lubrication of the jockey wheel should be carried out while the trailer is coupled to a vehicle.

- ► Check the bearing point and the wheel (Fig. 45 /3) for deformation.
- ► Lubricate the jockey wheel at the grease nipple (Fig. 45 /1) using a grease gun.
- ► Grease the sliding point (Fig. 45 /2).
- ► Crank the jockey wheel up and down several times - the grease will distribute itself.

Jockey wheel (manual)

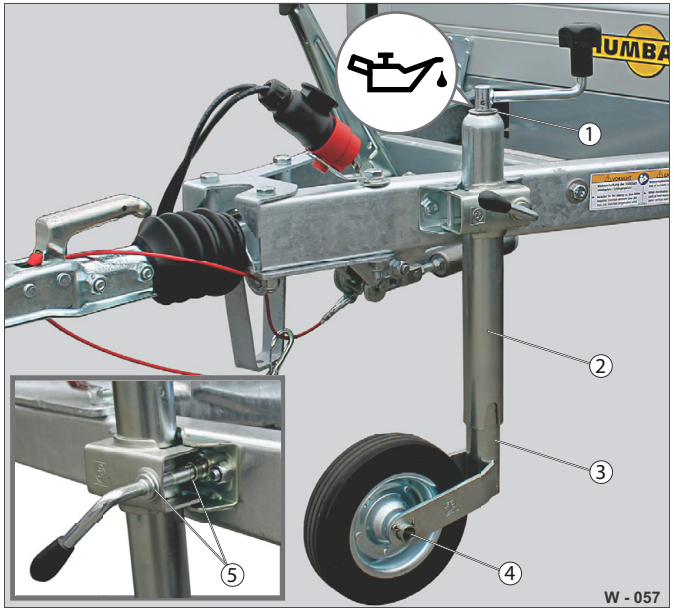


Fig. 46 Jockey wheels manual: Lubrication points

1 Oil gap
2 Cylinder body
3 Sliding tube
4 Bearing point / wheel
5 Clamp with T-handle screw

Lubrication of the jockey wheel should be carried out while the trailer is coupled to a vehicle or supported. The cylinder body (Fig. 46 /2) may not be lubricated on the outside!

- ► Check the bearing point and the wheel (Fig. 46 /4) for deformation.
- ► Drip machine oil into the oil gap (Fig. 46 /1).
- ► Unscrew the T-handle screw (Fig. 46 /5) and open the clamp.
- ► Lubricate the T-handle screw on the thread / washer.
- ► Secure the jockey wheel with clamp.
- ► Crank the jockey wheel up and down several times - the grease will distribute itself.

Handbrake (from 750 kg - 3.0 t)

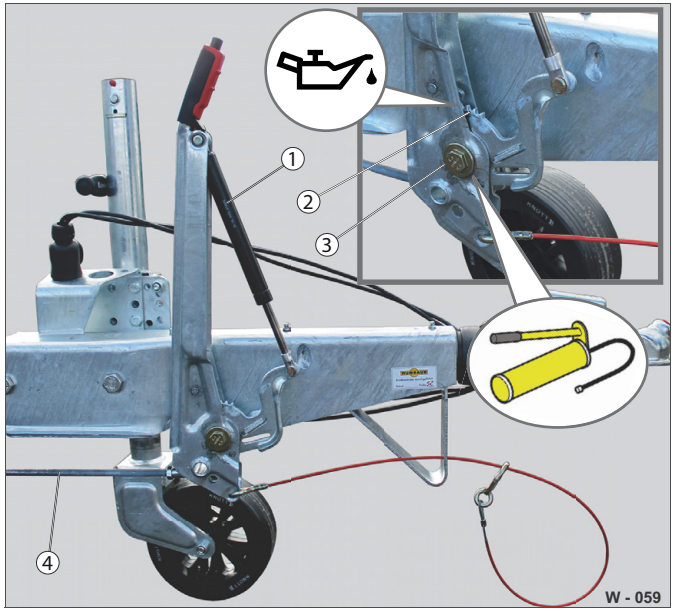


Fig. 47 Brake: Lubrication points

1 Hand brake lever / gas strut
2 Gear segment
3 Bearing point
4 Brake linkage

The gas strut (Fig. 47 /1) is maintenance-free. If it starts to fail, then it needs replacing.

- ► Check the brake linkage (Fig. 47 /4) and the hand brake lever with gas strut for deformation.
- ► Drip a little machine oil into the toothed segment (Fig. 47 /2).
- ► Lubricate the bearing point (Fig. 47 /3) with grease.
- ► Activate the hand brake several times - the grease will distribute itself.

Handbrake (from 3.0 t - 3.5 t)

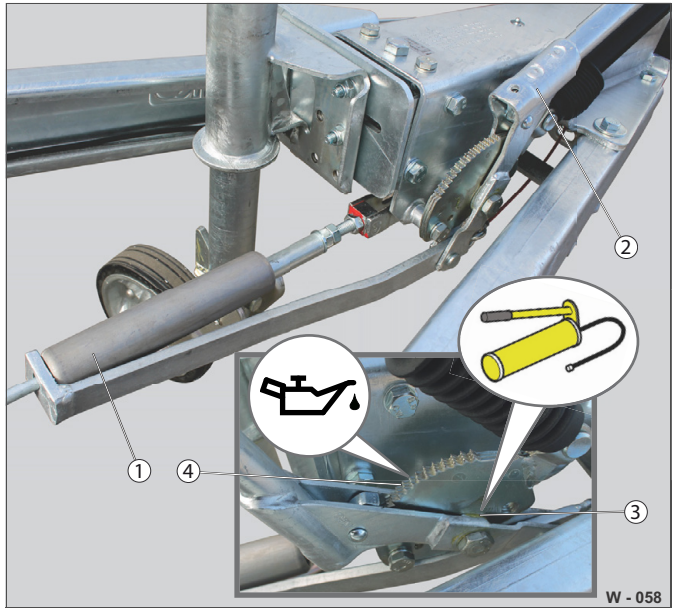


Fig. 48 Brake: Lubrication points

1 Brake accumulator
2 Hand brake lever / gas strut
3 Bearing point
4 Gear segment

The spring mechanism (Fig. 48 /1) is maintenance-free. If it is deformed or not working, then it needs to be replaced.

- ► Check the hand brake lever with gas strut (Fig. 48 /2) and spring mechanism (Fig. 48 /1) for deformation.
- ► Drip a little machine oil into the gearing (Fig. 48 /4).
- ► Lubricate the bearing point (Fig. 48 /3) with grease.
- ► Activate the hand brake several times - the grease will distribute itself.

Overrun / deflection device

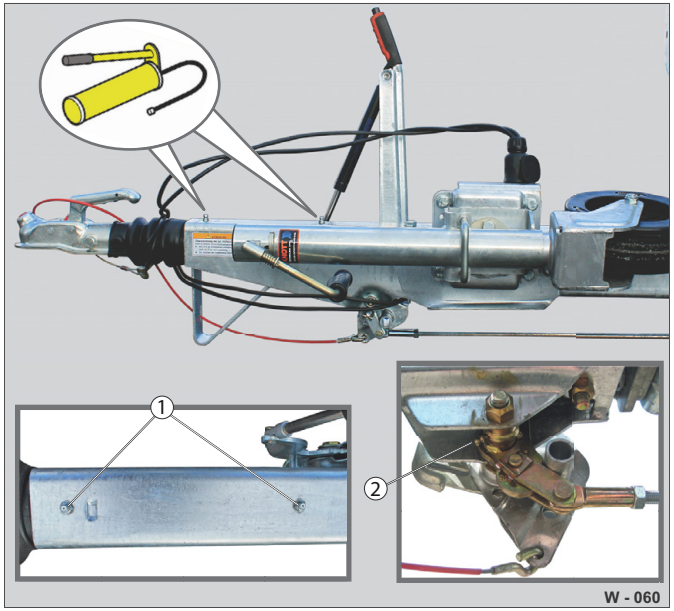


Fig. 49 Overrun device: Lubrication points

1 Grease nipple overrun device
2 Grease nipple deflection device

If there is too much play in the overrun / deflection device of the brake system, it needs readjusting or if faulty, it needs replacing.

- ► Lubricate the overrun device at the top grease nipple (Fig. 49 /1) using a grease gun.
- ► Lubricate the deflection device at the grease nipple (Fig. 49 /2) and oil the bearing points.
- ► Carry out a test braking procedure and check that the brakes are working properly.

Tandem compensator / brake cables

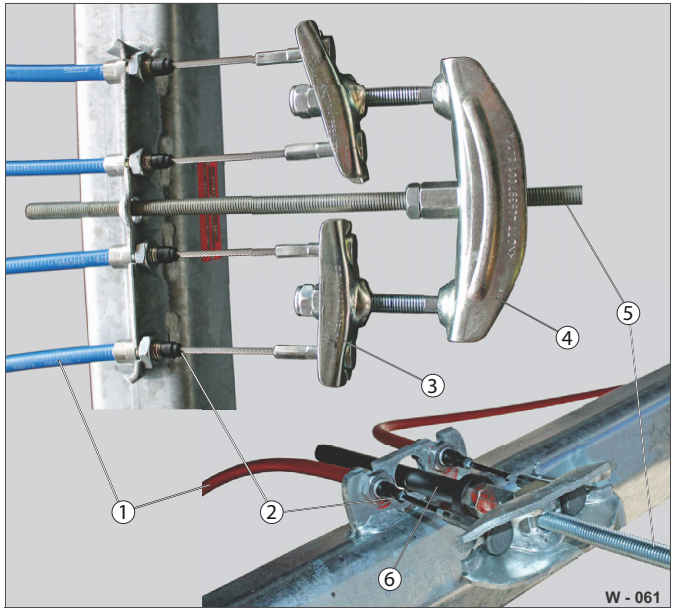


Fig. 50 Tandem compensation: Lubrication points

1 Bowden cable
2 Open brake cables / lubrication points
3 Individual compensation per wheel brake
4 Tandem compensation of all wheel brakes
5 Brake linkage
6 Brake linkage holder

The tandem compensator is there to ensure that all wheel brakes brake evenly. All Bowden cables (Fig. 50 /1) must be adjusted properly and must be lubricated. The brake linkage holder (Fig. 50 /6) prevents defective braking.

- ► Lubricate the open brake cables (Fig. 50 /2).
- ► Activate the hand brake several times - the grease will distribute itself.
- ► If necessary, readjust the tandem compensation (Fig. 50 /3).

Height-adjustable drawbar

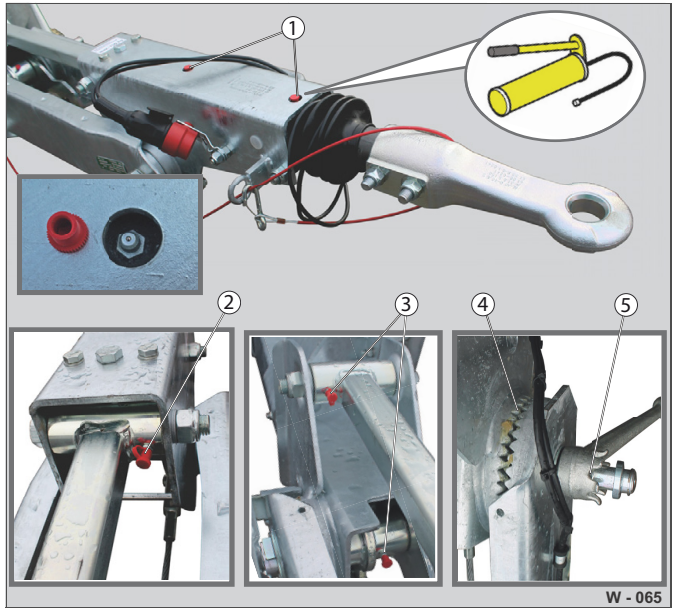


Fig. 51 HV drawbar: Lubrication points

1 Grease nipple overrun device
2 Grease nipple front bearing point
3 Grease nipple rear bearing point
4 Gearing
5 Locking toggle (thread)

To carry out lubrication, the HV drawbar needs to be released and adjusted several times. If applicable, it needs to be supported securely!

- ► Lubricate the overrun device at the top grease nipple (Fig. 51 /1) using a grease gun.
- ► Undo the locking toggle (Fig. 51 /5) and lubricate the thread.
- ► Lubricate all bearing points (Fig. 51 /1,2,3) on the grease nipple.
- ► Grease the gearing (Fig. 51 /4).
- ► Adjust to the required coupling height and secure the HV drawbar with the locking toggle.

Towing ring

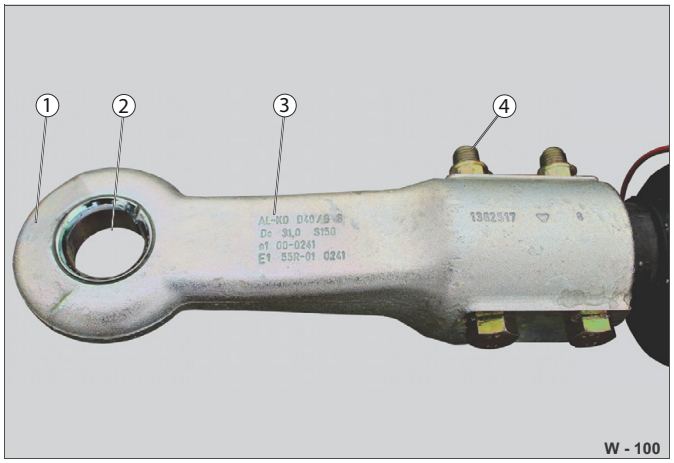


Fig. 52 Towing ring

1 Rounded area of towing ring
2 Wear bushing
3 Manufacturer label / technical values
4 Screw connection

► Clean the wear bushing (Fig. 52 /2) and the towing ring with a clean, dry cloth.

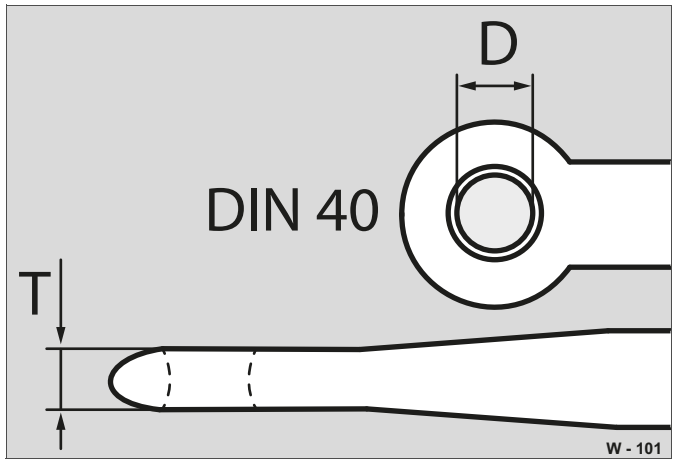


Fig. 53 Dimensions

D Diameter of wear bushing
T Thickness of towing ring

► Check the diameter of the wear bushing (Fig. 53 /D): D = 40 mm, max. + 1.5 mm
► If the maximum diameter value of D = 42 mm is exceeded, then the wear bushing needs to be replaced.

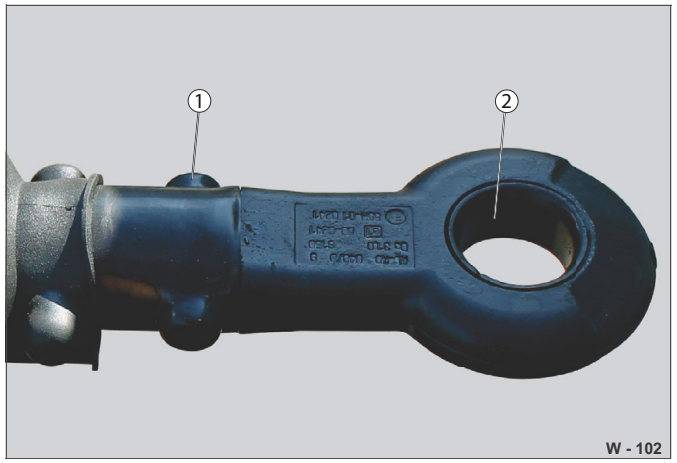


Fig. 54 Lubricate towing ring

1 Screw bolts
2 Wear bushing

The towing ring screw connection needs to be tightened after approx. 2000 km.
Please pay attention to the information provided by the towing ring manufacturer.

► Check the towing ring for damage.
► Lubricate the wear bushing (Fig. 54 /2) and the rounded area of the towing ring with long-acting high-pressure grease.
► Re-tighten the screw bolts (Fig. 54 /1).
► Adhere to the tightening torque: Torque 86 Nm.

Turntable (fifth wheel)

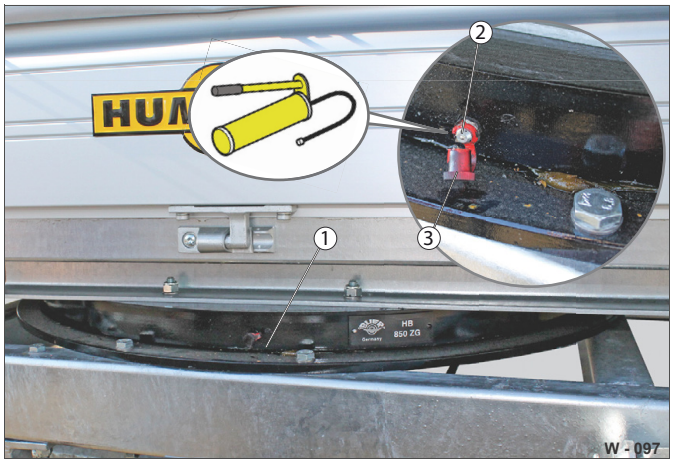


Fig. 55 Lubrication points on turntable

1 Turntable
2 Grease nipple
3 Cap

Roller bearing grease (Lithium grease NLGI 2) needs to be used for the turntable.

► Lubricate the turntable using a grease gun applied to the grease nipples all around the turntable (Fig. 55 /1). When lubricating, swivel the drawbar to the right and left.

Drawbar (turntable trailer)

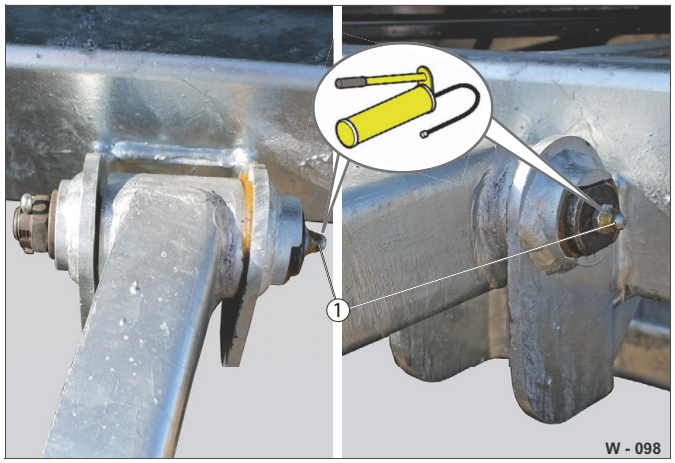


Fig. 56 Drawbar lubrication point

1 Grease nipple mounting bolts

► Lubricate the mounting bolts of the drawbar at the grease nipple (Fig. 56 /1) using a grease gun.

Turntable brake

Fig. 57 Turntable brake lubrication point

1 Gear
2 Locking mechanism
3 Lever

The turntable can be fitted with a turntable brake.

► Remove any foreign bodies from the turntable brake.
► Lubricate the gear (Fig. 57 /1) and lubrication points on the locking mechanism (Fig. 57 /2).
► Check that the turntable brake works.

Telescopic support

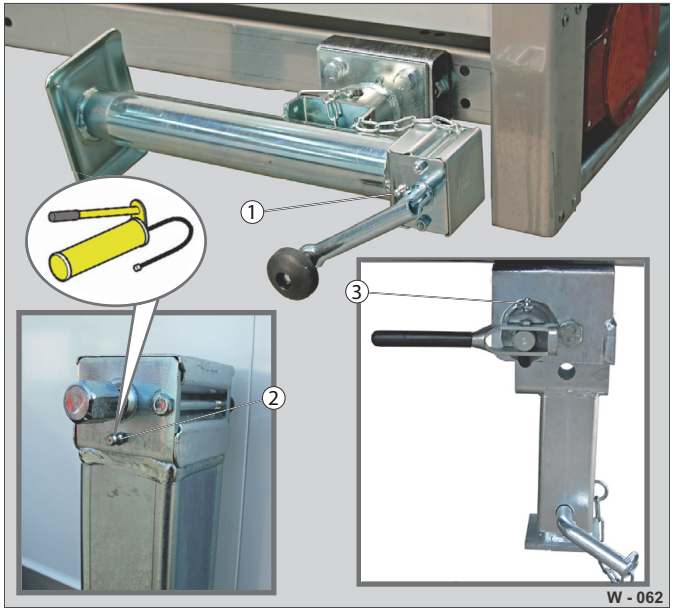


Fig. 58 Supports: Lubrication points

1 Grease nipple telescopic crank stand (can be swivelled)
2 Grease nipple telescopic crank stand (fixed)
3 Grease nipple folding supports

► Lubricate the supports at the grease nipple (Fig. 58 /1,2,3) using a grease gun.
► Crank the supports up and down several times - the grease will distribute itself.

Prop stand

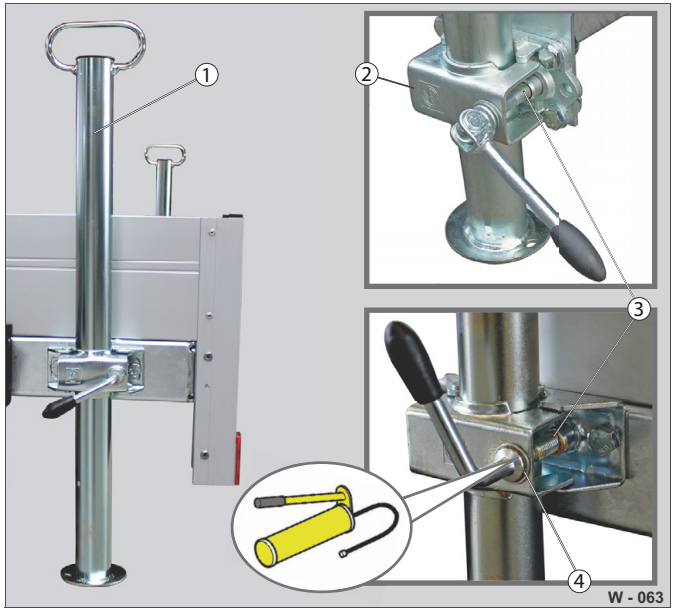


Fig. 59 Prop stands: Lubrication points

1 Cylinder body
2 Clamp / console
3 T-handle screw
4 Washer

The cylinder body (Fig. 59 /1) outside and the clamp (Fig. 59 /2) may not be greased!

► Unscrew the T-handle screw (Fig. 59 /3) and open the clamp (Fig. 59 /2).
► Remove the prop stand.
► Lubricate the T-handle screw on the thread and washer (Fig. 59 /4).
► Make sure that no grease gets onto the cylinder body of the prop stand or the clamp.
► Position the prop stand and clamp the cylinder body tight using the clamp.

Corner leg

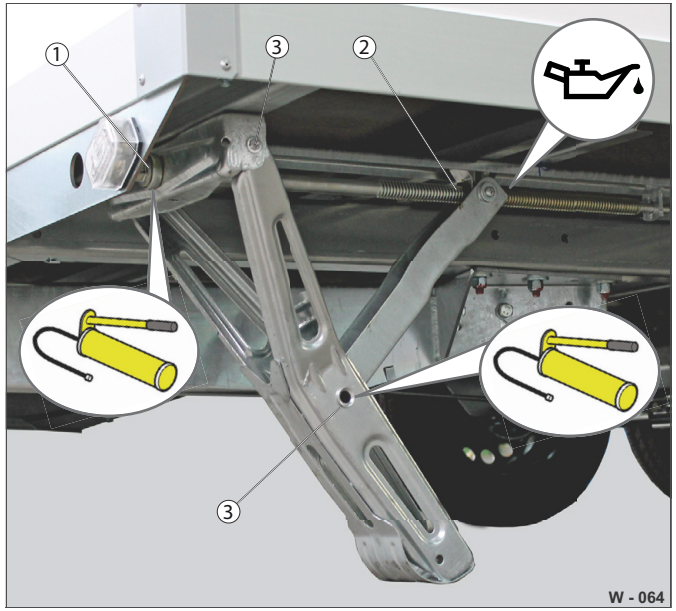


Fig. 60 Corner legs: Lubrication points

1 Square neck / bearing point
2 Spindle (open)
3 Bearing points

The open spindle (Fig. 60 /2) must not be lubricated with grease! Grease hardens at low temperatures - may lead to malfunction.

► Crank the corner leg out.
► Drip a little machine oil onto the open spindle (Fig. 60 /2).
► Lubricate the bearing point on the square neck (Fig. 60 /1) and bearing point (Fig. 60 /3) on the outside.
► Crank the supports in and out several times - the grease will distribute itself.

Checking setting of overrun brake

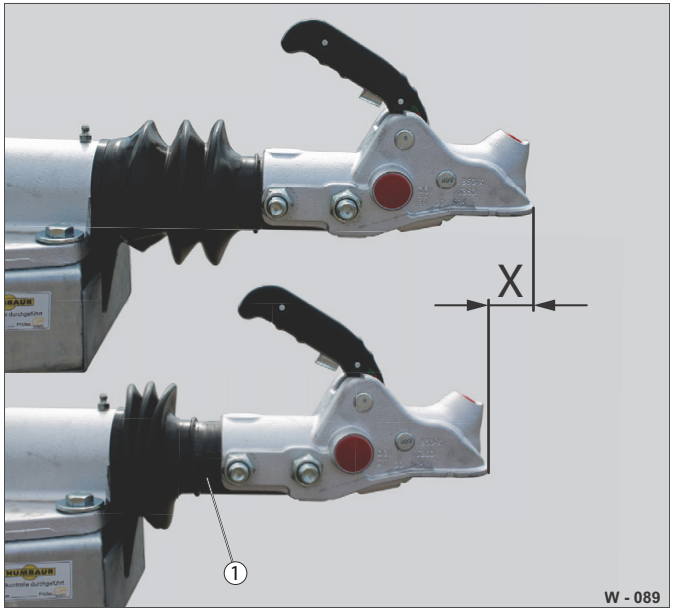


Fig. 61 Overrun device

X Overrun travel / clearance
1 Pull rod

The brake clearance needs to be checked after the first drive when loaded and then every 2000 - 3000 kilometres driven!

- ► Carry out a test braking procedure.
- ► Press in the ball head coupling - the brake linkage is activated.
- ► If there is clearance (X) of more than 30 mm, have the brake system adjusted by a specialist.

Loosening brake linkage

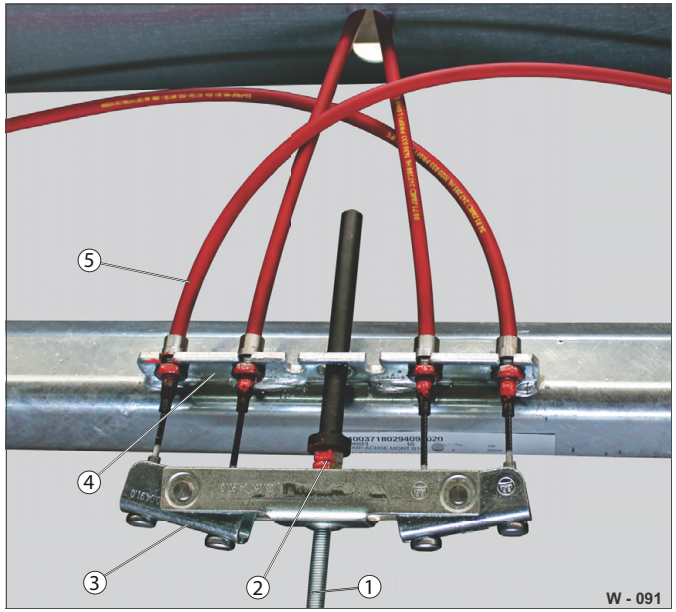


Fig. 62 Example: Brake compensation

1 Pull rod
2 Ball nut / lock nut
3 Compensation bar
4 Axle abutment
5 Brake pull cable (Bowden cable)

The pull rod (Fig. 62 /1) must be pulled all the way out and the handbrake must be completely released!

- ► Put the trailer on stands so that the wheels can spin.
- ► Undo the transmission device on the compensation bar (Fig. 62 /3) - undo hexagon nut / lock nut (Fig. 62 /2).
- ► Check the Bowden cable play on the axle abutment (Fig. 62 /4) - approx. 5 mm.
  The Bowden cable clearance should be as even as possible on wheels on the same axle!

Setting / readjusting the wheel brake

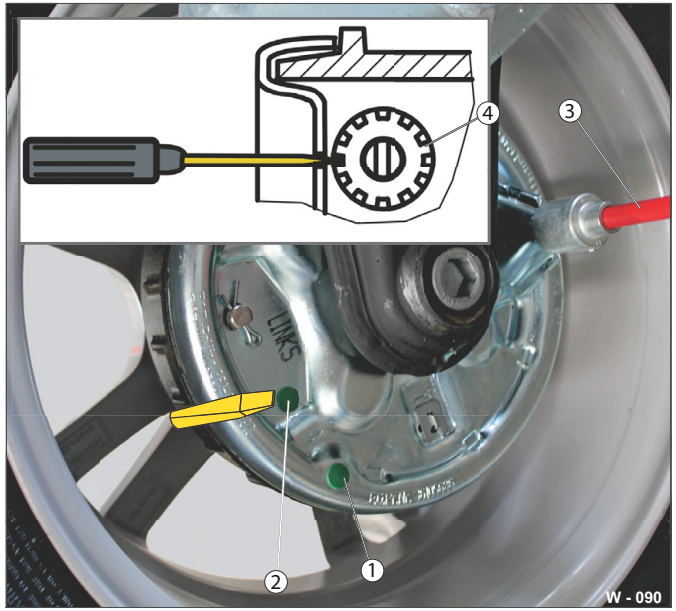


Fig. 63 Example: Drum brake (ALKO)

1 Stopper in inspection port for brake pad
2 Stopper in adjustment opening
3 Brake pull cable (Bowden cable)
4 Adjusting nut

- ► Remove the stopper from the adjustment opening (Fig. 63 /2).
- ► Adjust the adjustment nut (Fig. 63 /4) with a slot-head screwdriver - pay attention to the arrow markers:
  Turn in direction of arrow = readjust brakes /
  Turn against direction of arrow = release brakes
- ► When adjusting, turn the wheel in a forwards direction.
- ► Adjust the brakes until the wheel is stopped - the brake callipers are centred.
- ► If applicable, apply and release the hand brake several times.
- ► Release the adjustment nut until the wheel runs freely.

Tensioning brake linkage

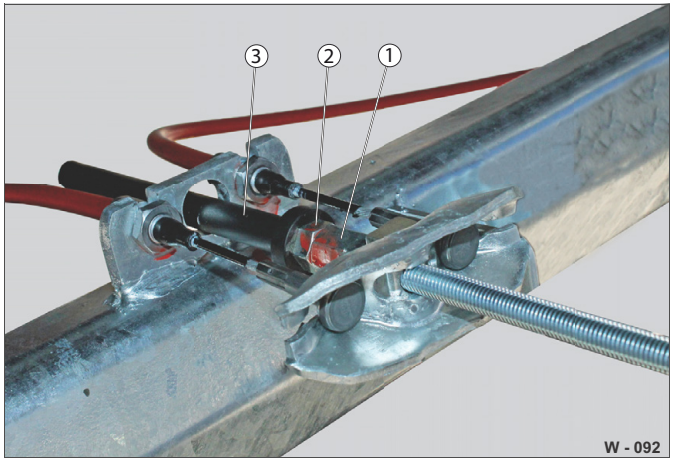


Fig. 64 Example: Brake compensation tensioned

1 Lock nut
2 Ball nut
3 Brake linkage holder

► Connect the brake linkage on the compensation rod with a ball nut (Fig. 64 /2) - do not tighten.
► Move the hand brake lever several times - pull on brake hard.
The brake system will settle.
► Screw the ball night tight until the Bowden cable pull reaches a pre-tension of 1-2 mm.
► Lock the ball nut with the lock nut (Fig. 64 /1).
The brake linkage holder (Fig. 64 /3) prevents the brake activating unintentionally while driving.

Checking wear on brake pad

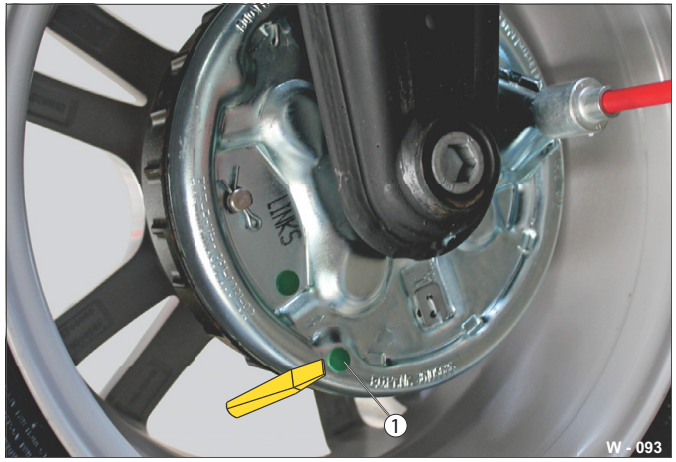


Fig. 65 Example: Drum brake (ALKO)

1 Stopper in inspection port for brake pad

Brake pads always need to be replaced in pairs per axle!

► Remove the stopper from the inspection port (Fig. 65 /1).
► Check the wear condition of the brake pad.
Brake callipers need to have at least 2 mm brake pad.
► Have worn brake pads replaced by a specialist in a specialist workshop.

Replacing brake pads

Fig. 66 Installation instructions from manufacturer ALKO

► Replace the brakes pads as specified in the installation instructions from the axle manufacturer.

Maintaining electric systems / replacing bulbs

Fig. 67 Check lighting

The trailer is supplied with 12 V DC by the towing vehicle.

The outside / inside lighting must be checked during the annual inspection!

The supply battery of the towing vehicle must supply the required voltage (12 V).

LED lights can only be replaced completely. You need to make sure that all lights are working after replacing a bulb.

WARNING

Inadequate lighting

Increased risk of accidents if the vehicle lighting is not working!

- ► Before driving off, check:
  1. Rear light assemblies,
  2. Number plate lights,
  3. Side marker lights,
  4. Clearance lights.
- ► Replace any faulty bulbs / LED lamps / broken lenses / reflectors.
  Only replace bulbs with those of the same wattage and the same type.

Have all work on electrical installations carried out by qualified specialist staff.

CAUTION

Short circuit in the electric system

People could suffer burns.

A short circuit could set the trailer on fire and cause damage to the towing vehicle.

Observe the following points before working on the electrical system:

- ► Unplug all plug connections to the towing vehicle.
- ► Unplug all plug connections to external power supplies.
- ► Switch off all power consumers.
- ► Disconnect the negative terminal (-) on the battery. Use insulated tools.

NOTICE

Contamination during installation

Electric elements, bulbs can be contaminated during installation if touched with bare hands or in a dirty environment. Contacts can be disrupted.

- ► Only carry out work on the electrical system in areas protected from the environmental conditions - protect from getting wet.
- ► Do not touch new bulbs with your bare hands - it will shorten the service life of the bulb.
- ► Use clean gloves or a soft, clean cloth to touch bulbs / lights or use the light packaging.

Multifunctional lighting at rear

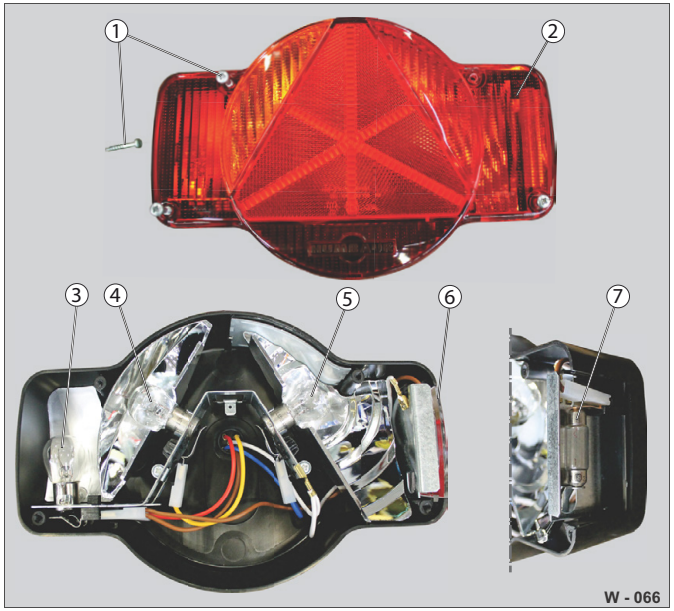


Fig. 68 Humbaur tail light (horizontal)

1 4x crosshead screws
2 Light lens (plastic)
3 Brake / tail light assembly (P21W/5W)
4 Indicator (P21W)
5 Rear fog light (P21W) - left version
Reversing light (white lens) - right version
6 Slot-in cover (plastic)
7 Number plate tubular bulb (C5W)

► Undo the crosshead screws (Fig. 68 /1) and carefully remove the light lens (Fig. 68 /2).
► Replace faulty bulbs.
Screw the new bulb tightly into the socket - pay attention to locking pins.
► If required, clean the contacts - use contact spray.
► Place the light lens on the housing - pay attention to seal.
► Screw on the light lens - not too tight.
► Replace any damaged seal / light lens if required.

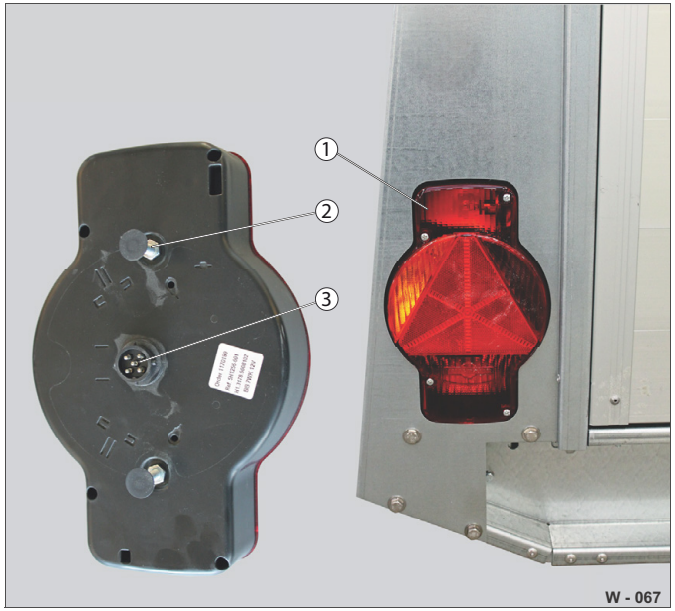


Fig. 69 Humbaur tail light (vertical)

1 Tail light (left version)
2 Threaded bolt / screw connection
3 Plug connection / contacts

When replacing the complete tail light, please note: The tail lights are available in various versions: right version with/ without reversing light and left version as well as in horizontal /vertical design.

► Undo the screw connections (Fig. 69 /2) and the plug connection (Fig. 69 /3) to the tail light.
► Insert the new tail light (Fig. 69 /1) pay attention to version.
► Use the threaded bolts to screw it in place.

Clearance lights (stalk)

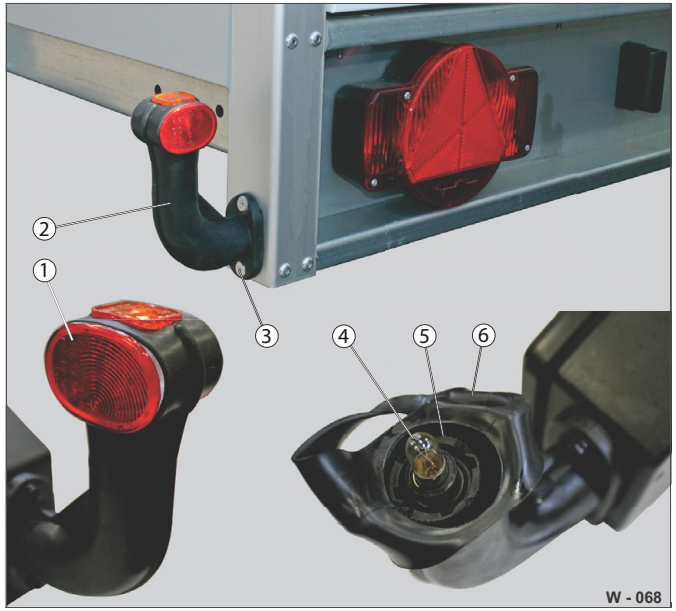


Fig. 70 Clearance light / stalk on rear

1 Light (red, orange, white)
2 Rubber arm / stalk
3 Attachment (rivets, screws)
4 Bulb
5 Screw connection / socket
6 Rubber protective cover

► Spray the rubber protective cover (Fig. 70 /6) with silicone spray - makes it easier to slide on and off.
► Pull the rubber protective cover off the bulb using a tool (Fig. 70 /1).
► Unscrew the light.
► Unscrew the bulb (Fig. 70 /4) from the screw connection (Fig. 70 /5) and replace it.
► Screw in the light - make sure it is screwed in tight.
► Slide the rubber protective cover over the light.

Clearance light

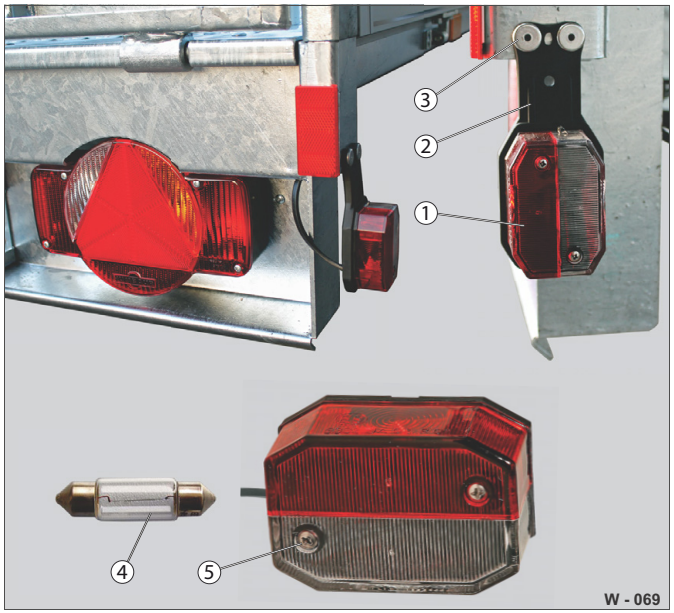


Fig. 71 Clearance light / bulb at side on rear

1 Cover glass (red, white)
2 Mounting plate
3 Attachment (rivets, screws)
4 Bulb (tubular 12V/5W)
5 Screw connection (crosshead)

► Undo the screw connection (Fig. 71 /5) and remove the cover glass (Fig. 71 /1).
► Replace the tubular bulb (Fig. 71 /4).
► Attach the cover glass on the mounting plate (Fig. 71 /2) with the screw connection - do not tighten too much, pay attention to alignment.

Clearance light - narrow

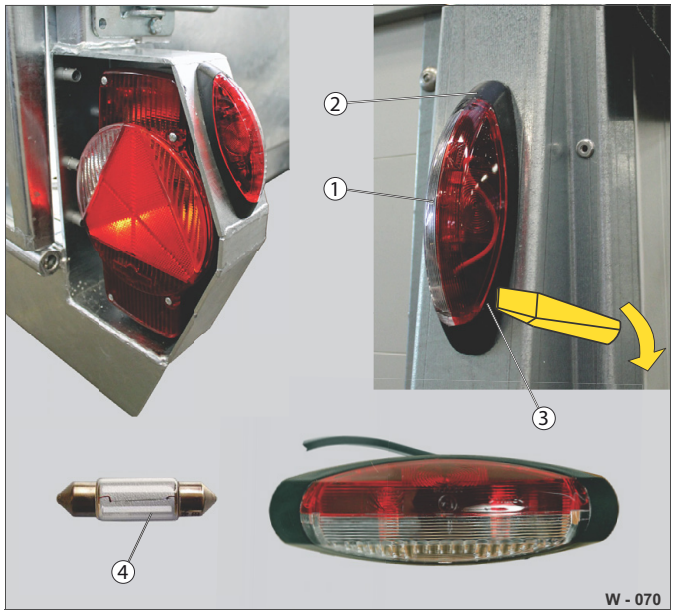


Fig. 72 Clearance light / bulb at side on rear

1 Cover lens (red, white)
2 Mounting plate
3 Slot to open
4 Bulb (tubular 12V/5W)
5 Cover glass - cover

► Carefully loosen the cover glass (Fig. 72 /1) with flat tool in the slit (Fig. 72 /3).
► Replace the tubular bulb (Fig. 72 /4).
► Insert the new tubular bulb.
► Place the cover glass on the mounting plate (Fig. 72 /2) - pay attention to orientation.

Side light

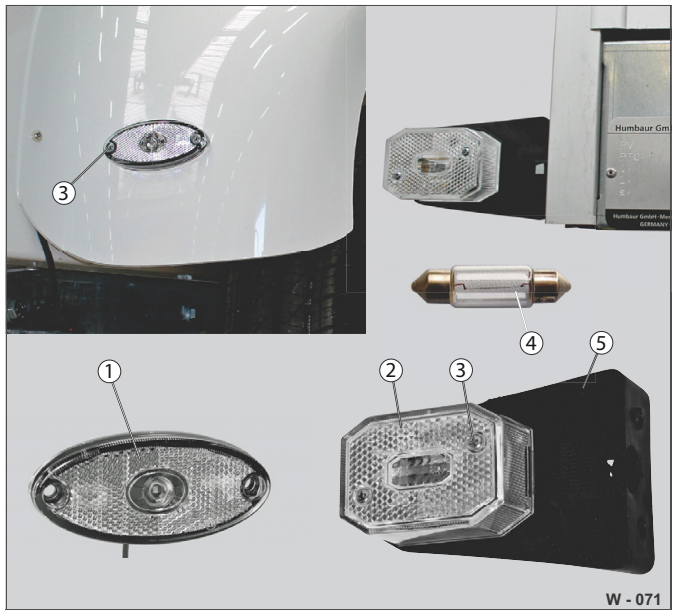


Fig. 73 Side light / front bulb

1 LED light (compact)
2 Cover glass (white)
3 Screw connection (crosshead)
4 Bulb (tubular 12V/5W)
5 Mounting plate

► Undo the screw connection (Fig. 73 /3) and remove the cover glass (Fig. 73 /2).
► Replace the tubular bulb (Fig. 73 /4).
► Attach the cover glass on the mounting plate (Fig. 73 /5) with the screw connection - do not tighten too much, pay attention to alignment.

With LED lights:

► Have a faulty LED light (Fig. 73 /1) replaced in a specialist workshop.

Side marker light

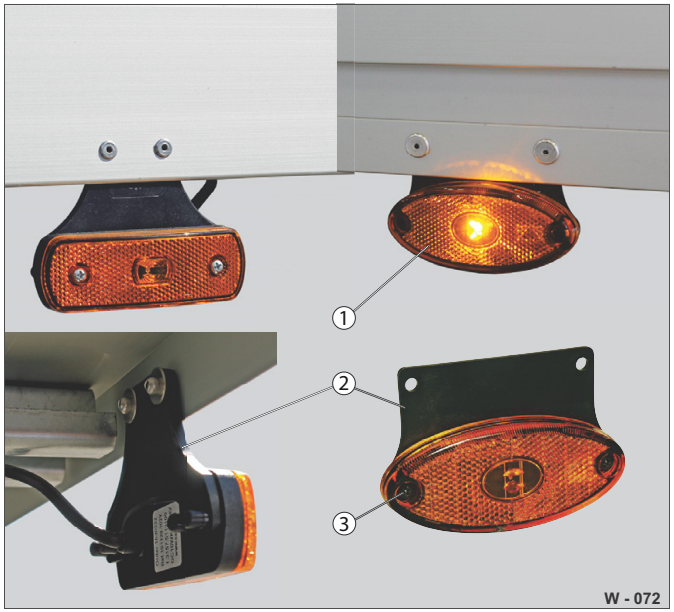


Fig. 74 Side marker lights

1 LED light (orange)
2 Mounting plate
3 Screw connection (crosshead)

► Have a faulty LED light (Fig. 74 /1) replaced in a specialist workshop.

Number plate light

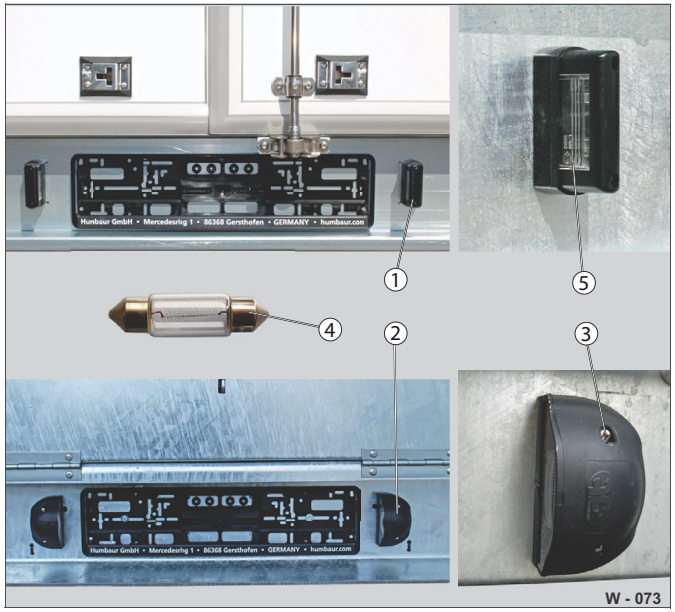


Fig. 75 Number plate lights, separate

1 Light holder version 1
2 Light holder version 2
3 Screw connection (crosshead)
4 Bulb (tubular 12V/5W)
5 Light cover (white)

► Undo the screw connection (Fig. 75 /3).
► Remove the light cover (Fig. 75 /5) with the housing.
► Replace the tubular bulb (Fig. 75 /4).
► Attach the light cover and the housing with the screw connection.

Reversing light

Fig. 76 Reversing light, separate

1 Light holder
2 Cover glass (white)
3 Screw connection (crosshead)
4 Bulb (P21W)

► Undo the screw connection (Fig. 76 /3).
► Remove the cover glass (Fig. 76 /2) from the housing.
► Remove the bulb (Fig. 76 /4).
► Replace the faulty bulb.
Screw the new bulb tightly into the socket - make sure the pins are properly aligned.
► Screw the cover glass onto the housing.

3. Brake light strip

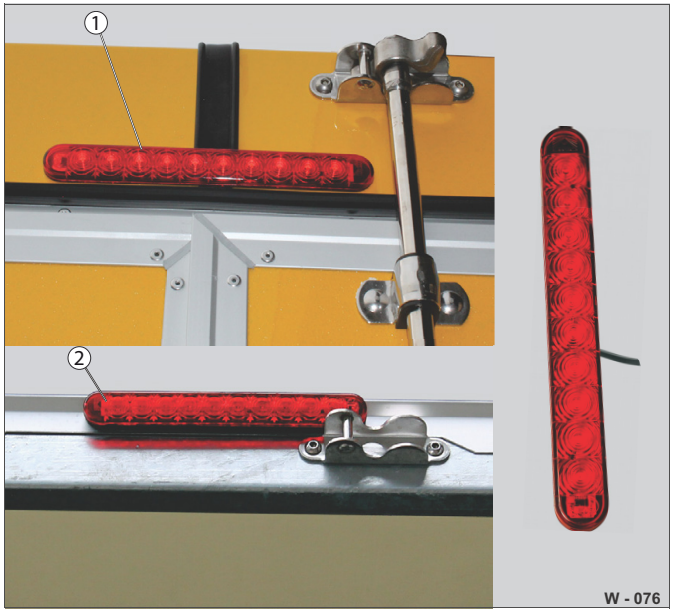


Fig. 77 Brake light strip, separate

1 LED brake strip (for polyester body)
2 LED brake strip (for aluminium, steel frame)

The LED brake light strip is self-adhesive.

► Remove the LED brake strip from the body (Fig. 77 /1 or Fig. 77 /2).
► Unplug the electric connection.
► Clean the sticking surface - do not use any aggressive solvents, e.g. ACETONE.
► Make the electric connection to the new LED brake strip.
► Stick on the new LED strip.

Retro-reflectors / reflectors

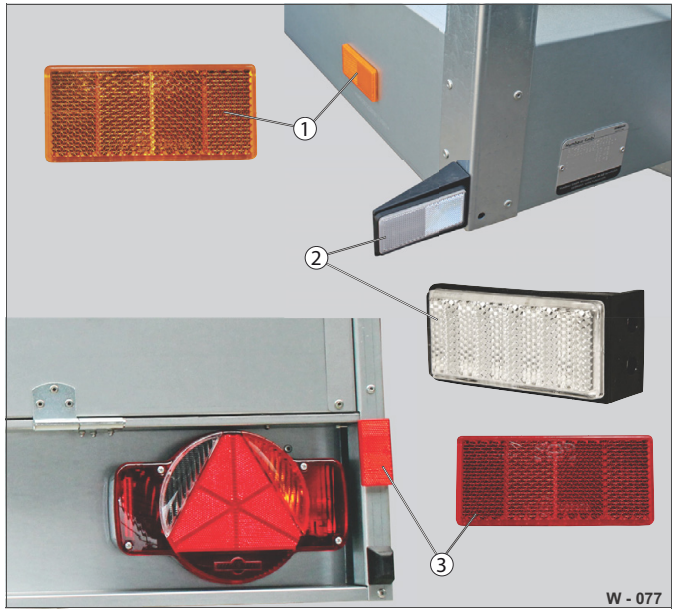


Fig. 78 Retro-reflectors / reflectors

1 Reflector side (orange)
2 Reflector front (white)
3 Reflector rear (red)

The reflectors are self-adhesive and are used as clearance markers for the trailer.

► Pull a faulty reflector (Fig. 78 /1, 2,3) off the surface.
► Clean the sticking surface - do not use any aggressive solvents, e.g. ACETONE.
► Apply a new reflector in the correct colour - push on hard. Please note: For the adhesive to work properly, the adhesive surface should be min. + 15 °C - if necessary warm up beforehand with a hair-dryer.

Interior lighting

Fig. 79 230 V AC / 12 V DC

1 Linear light (230 V AC)
2 Interior light (12 V DC)

.

► Remove the cover from the light.
► Replace light sources (tubular bulbs or bulbs) of the same type and output.
► Put the cover on.
► Check that the turntable brake works.

Need for cleaning / care

The service life and functionality of your trailer depend on how intensely and how frequently the surfaces are cleaned and cared for.

Cleaning, maintenance and care are essential parts of driving safety and retaining the value of your trailer.

Bird droppings, dead insects, resin, tar stains, etc. must be washed off immediately to prevent damage to the paintwork due to corrosive substances!

In a salty environment (winter, near the sea) external cleaning needs to be carried out at shorter intervals (every 3 -4 weeks).
This particularly also applies to cleaning the brushed bare steel stainless steel frames.

Carelessness while cleaning and not observing the safety information can lead to personal injury and material damage.

WARNING

Dirty trailer components / surfaces!

Dirty trailer components such as the ball head coupling, overrun device, brake system, lighting system, superstructures can stop these trailer components from working properly or even failing altogether, posing an indirect risk of accidents during operation.

► Clean / care for your trailer at regular intervals - depending on how often you use it, the environment you are using it in and the degree of contamination.

Trailers contain substances which can pollute the environment, e.g oil, grease, acid, brake dust. These can escape into the environment while cleaning.

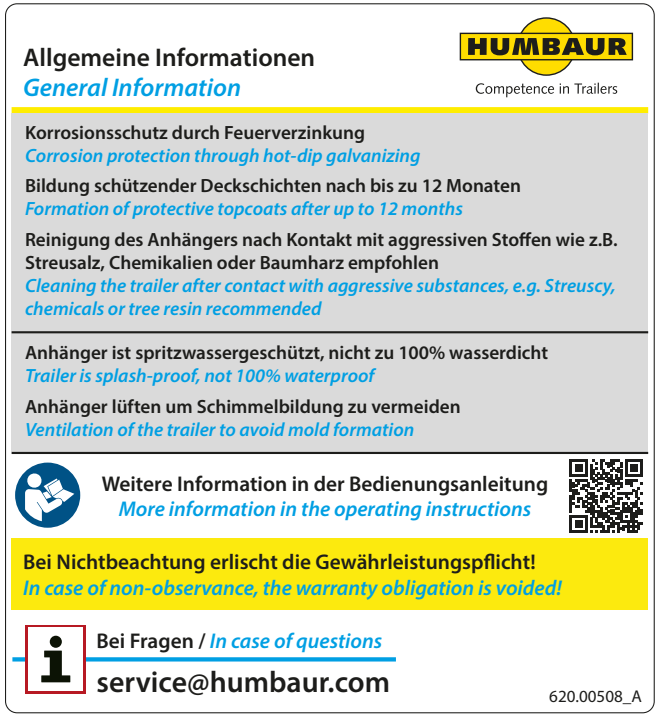


Fig. 80 Sticker general information

Closed trailer bodies, e.g. box, horse box / animal trailers are protected from spray water, but they are not 100% water-tight.
A strong wind can cause rain to get inside the trailer while driving.

To avoid mould forming and water damage, it is necessary to regularly ventilate the trailer!

Important cleaning information!

The following points must be adhered to before / during cleaning:

► Only clean your trailer at a suitable wash station.
► Comply with local environmental regulations.
► Make sure that the power supply has been disconnected.
► Clean it after driving on roads which have been gritted (in the winter) or after transporting fertiliser or other substances which are acidic, contain salt or alkali, e.g. manure, thoroughly clean your trailer with clear water, e.g. a high-pressure cleaner - see “High-pressure cleaner” on page 178.
► In the first months, if possible, only wash your new trailer with clear / cold water.
► Carefully remove any grease spots with white spirit (not petrol).
► Do not handle hydraulic hoses with petrol, benzene, petroleum or mineral oils.
► Do not touch brake and hydraulic lines with sprays or grease.
► Prevent any liquids coming into contact with sensitive electronic components e.g. battery, alternator, refrigerating unit, bulbs etc.
► Always take note of the specific features for care of various materials.
► Remove any paint / surface damage immediately!

Safety while cleaning!

WARNING

Cleaning / care products can be toxic!

People can injure or poison themselves, or given themselves chemical burns if they come into contact with skin or are breathed in.

► Read the instructions for use and safety data sheet of the care products.
Hazardous materials are identified on the product.

► Make sure beforehand that you know which materials can be treated with the care products used.

► Use , .

► After cleaning the trailer, wash your hands thoroughly with water / hand cleaner.

► If necessary, before / after cleaning, use hand care products.

Fig. 81 Stepping on the trailer

CAUTION

Stepping on trailer / cargo bed when cleaning

When cleaning with liquid (water, cleaning products), there is the risk of slipping / falling over!

► Take particular care when stepping on the cargo bed and only access it via the designated access points.

► Do not tread on mudguards, drawbar, drop sides, toolbox.

► Use , .

► Never step onto an unsecured trailer / tipped cargo bed.

► Do not step under an unsecured / tipped cargo bed / loading bridge.

NOTICE

Using aggressive cleaning products

The surfaces / materials can be attacked by chemicals, salts, acids and bases.

► Use , .

► In the first 3 months, only wash with cold water and do not use any high-pressure cleaning equipment.

► Wash with clear water (not above 60 °C), to avoid scratches in the paintwork.

► Do not use any aggressive / scouring cleaning products, acids or bases.

► Only use mildly acidic or weakly alkaline cleaning products with a pH value of 6-10.

► Only use soft, clean fabric cloths or brushes.

► Carefully remove any grease spots with pure petroleum ether (not petrol).

► To clean the tarpaulins and wall, only use a suitable cleaning product.

► Do not clean seals with mineral oils, petrol and solvents.

► Do not let the sealing rings come into contact with grease.

High-pressure cleaner

NOTICE

Cleaning with a high-pressure cleaner!

Components / surfaces which have a high-pressure jet aimed at them with too much pressure, when too close or with a water temperature which is too high could be damaged.

► Do not aim the jet of water directly at:

- type plate
- stickers,
- seals, door seals
- electrical components / distributor,
- plug connections,
- cable screw connections / cables,
- piston surfaces / extensions and wipers of the telescopic cylinder,
- oil / fuel container cap,
- brakes or hydraulic hoses,
- batteries,
- tyres,
- ball head coupling,
- silicon joints in box sandwich panels.

In the first 3 months, you must not clean the trailer with a high-pressure cleaner!

The painted / galvanised surfaces / materials are still sensitive and need to fully harden first. Galvanised components need to build up an oxide layer first.

Silicone joints could still be soft and could be damaged by the powerful jet of water.

Vehicles with a wooden trailer body (box) must never be cleaned with a high-pressure cleaner.

It could cause micro-tears in the cover film. Moisture could get into the wooden plates and cause the plates to swell.

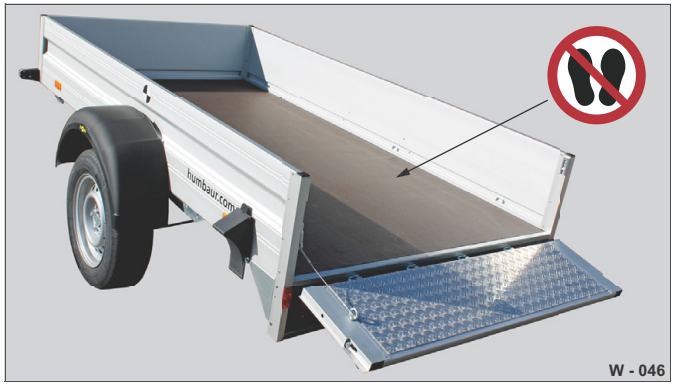


Fig. 82 Cleaning cargo bed / chassis

► Read the operating instructions for the high-pressure cleaner.

► If possible, tip / tilt the cargo bed so that the water can run off.

► If required, lubricate all lubrication points before cleaning until grease comes out.

► Use , , .

► When cleaning, move the jet of water in a circular motion.

► Only use high-pressure cleaners which have a max. pressure of 50 bar and allow a max. temperature of 80 °C.

► Keep to a minimum distance between the high-pressure jet and the object to be cleaned - for round jet nozzles approx. 700 mm, for 25° flat jet nozzles approx. 300 mm.

► Do not use a round jet nozzle to clean tyres and the tarpaulin. A powerful jet of water could damage the tyres or the tarpaulin.

Cleaning the inside

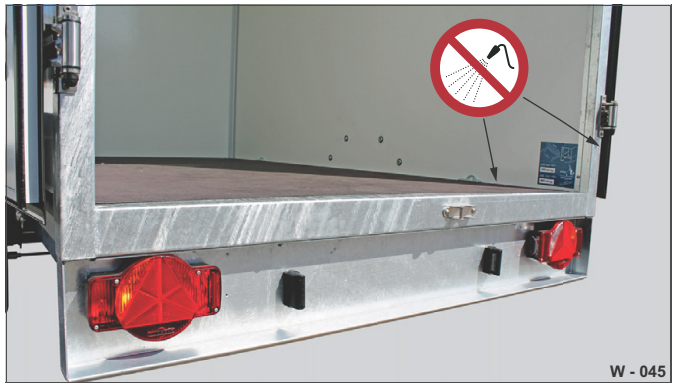


Fig. 83 Cleaning the inside

NOTICE

Spraying out inside with high-pressure cleaner!

The side walls / floor /roof are glued and sealed - a high-pressure cleaner can dissolve the glue / sealing - and lead to water / humidity damage.

► Do not clean the inside of the trailer with a high-pressure cleaner.

► Use only water at normal pressure, e.g., from a hose pipe, for cleaning the interior.

► Wash the inside walls with lukewarm water and neutral detergent by hand, e.g. with neutral soap.

► Use a broom to remove coarse dirt.

► Wash the cargo bed and inner walls by hand if necessary.

Ventilating / drying the inside

Fig. 84 Ventilating the trailer / drying it out

1 Tarpaulin cover, open
2 Drop side folded down

Mould and moisture damage can be prevented by adequately ventilating the interior.

- ► Allow the interior of the trailer to dry thoroughly after cleaning.
- ► Open up openings, such as:
  vent windows, skylights, doors, tarpaulin and drop sides if necessary.
- ► Remove any standing water with a broom and cloth.

Trailer materials

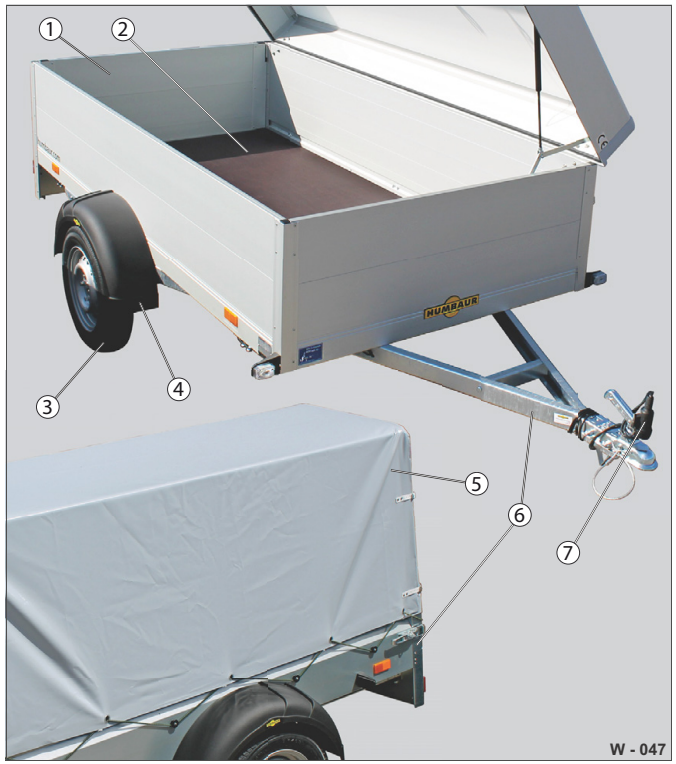


Fig. 85 Example: Trailer materials

1 Aluminium (anodised)
2 Wood
3 Soft rubber
4 Plastic
5 Synthetic fabric (PVC)
6 Steel / sheet steel (galvanised)
7 Rubber (hoses)

The trailers are assembled from various materials.

Always take note of the specific features for care of the materials / surfaces.

Galvanised steel parts

Fig. 86 Galvanised surfaces

Galvanised surfaces / components need to oxidise to prevent rust from developing. This can take several months. Once the surface loses its high gloss, a layer of rust protection has been formed. White rust can form on galvanised surfaces - promoted / caused by moisture / high humidity e.g. in road salt. White rust is not a defect / damage on the surface - cannot be affected by the galvanising plant and is not a reason for a warranty claim.

- ► Clean the galvanised components with clear water after they have come into contact with aggressive substances.
- ► Let the surfaces dry out properly.

When treating white rust:

- ► Clean the affected areas with plenty of clear water and dry them thoroughly.
- ► Remove the spots of white rust with a nylon brush.
- ► Apply zinc protection (zinc spray) to the affected areas.
- ► Seal the surface with wax if required.

Aluminium

Fig. 87 Aluminium, anodised

Aluminium components or aluminium profiles offer optimal protection against corrosion.

Anodised aluminium surfaces are hard / smooth and can be cleaned with gentle cleaning products.

In order to remove severe dirt contamination and to retain the gloss of the aluminium, we recommend using an aluminium and tarpaulin cleaner.

Scratches on the surface are not defects and will not cause rust to form as aluminium is resistant to corrosion.

Optical disadvantages are not a reasons for a warranty claim.

► Clean the aluminium surfaces with water and neutral cleaning products.

Painted and powder-coated steel parts

Fig. 88 Painted surfaces

Painted surfaces / components provide slight rust protection.
Painted surfaces / components which are directly exposed to the affects of brake dust, gravel, road salt, sand etc. need to be cleaned thoroughly to ensure that the painted surface looks good and to provide long-term protection from rust forming.

► Clean the painted surfaces after they have been in contact with substances which attack the surface.
► Let the surfaces dry out properly.
► Seal the surface with wax if required.
► Paint damage (flaking, scratches) on the surface should be immediately rectified by a qualified specialist.

Stainless steel

Stainless steel surfaces are very robust and resistant to environmental influences.

In environments with a salty atmosphere, e.g. by the sea or when transporting a wet load, e.g. in a refrigerated box, a rust film can form on the stainless steel surface.

► Remove rust from stainless steel components using conventional stainless steel cleaner.
► Let the stainless steel components dry out properly.

Wooden components

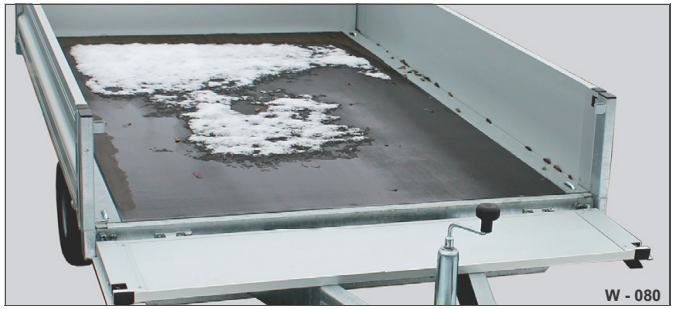


Fig. 89 Wooden cargo bed / multilayer wooden plate

Wooden floors / cargo beds are made of robust, water-resistant, laminated multi-layer wooden plates that are coated with anti-slip phenolic resin.

Wood is an organic material and is strongly affected by water-logging, UV radiation, extreme dryness, overload and concentrated load.

Wood is subject to weather-dependent expansion or shrinkage, which may cause tension and tension cracks (hairline cracks). Natural wood grain and irregularities are normal for wooden materials and can appear on the surface. This does not pose a safety risk and does not provide a valid reason for warranty claims.

Avoid puddles forming on the wooden surface.

Damages areas in multi-layer wooden plates, e.g. Indents, scratches do not impair its functionality. These areas can be treated with wood protection products to prevent water penetration.

Note:

Underlay such as rubber / anti-slip mats, cardboard protects the surface of the multi-layer wooden plate when transporting and when loading / unloading and increase the service life. When loading / unloading, make sure that the load is not slid along the surface where possible.

Caring for multi-layer wooden plate

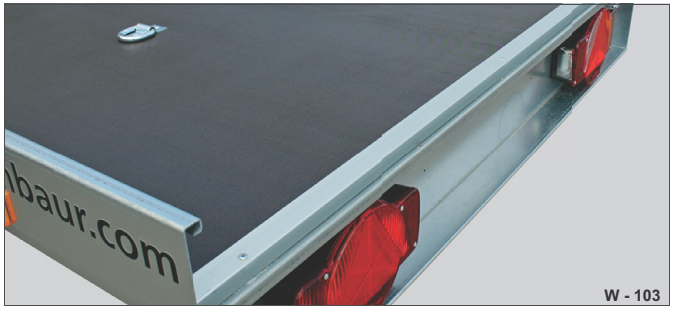


Fig. 90 Multi-layer wooden plate

Prevent the wooden surface swelling and oxidation with galvanised material:

- ► Immediately remove water, snow, ice, twigs, leaves, sand, grass etc. from the wooden surface after / before use as when parking the trailer.
- ► Park the trailer so that it is slightly inclined towards the back so that the water can run off the cargo bed / roof.
- ► Cover the trailer with a tarpaulin, cover after drying it or park it so that it is protected from the weather.
- ► Regularly dry the wooden surface thoroughly and after using the trailer.
- ► Make sure it is well-ventilated e.g. outdoors until the surface is completely dry.
- ► Close and seal scratches or damage to the wooden surface caused by the load by applying a wood protection product - this reduces the amount of water which can penetrate the wooden plate.

Plywood

Fig. 91 Plywood plates (box bodies)

Plywood consists of several multi-layer wooden plates glued together with a UV-resistant plastic coating (PVC) on each side, for example walls, roof on box trailers.

Plywood with a plastic coating is stable and easy to maintain.

Do not use a high-pressure cleaner!

- ► Clean the surfaces with water a neutral cleaning products (e.g. plastic cleaner).
- ► After cleaning the plywood surface, make sure it is dried properly.

Sandwich panels (PurFerro)

Fig. 92 Sandwich panels (box bodies)

Sandwich panels consist of a polyurethane hard foam core and two walls made of galvanised, powder-coated steel sheets, aluminium or GRP.

Sandwich panels in the floor areas are made of a polyurethane hard foam core and multi-layer wooden plates glued together with anti-slip phenolic resin coating.

Sandwich panels are very robust and do not require much care.

- ► Clean the surfaces with water and neutral cleaning products.
- ► Cleaning powder-coated sheet steel walls - see painted steel surfaces.
- ► Cleaning aluminium - see aluminium.
- ► Cleaning plywood walls with PVC coating - see plywood.
- ► After cleaning the sandwich panel surfaces, make sure they are dried properly.
- ► If not used for a long period of time, ensure good air circulation inside the trailer body.

Rubber / seals (silicone joints)

Fig. 93 Sealing elements

Rubber parts such as elastic seals, sealing joints made of PU adhesive / sealing material, e.g. On doors, lids, flaps, vent windows, cargo bed etc. are subject to a certain ageing / wear process during used.
Mechanical loads and environmental influences (cold, heat, UV radiation, moisture) harden the rubber /seal over time - it may shrink and start cracking.

Missing or badly attached seals can lead to moisture damage to the trailer body and cargo bed.

- ► When cleaning, check the condition, completeness and adhesion of the seals.
- ► Have damaged, missing, porous seals replaced.
- ► Regularly maintain the seals (in the winter) with talcum powder, Vaseline or silicone spray.

Fabric tension cables (cords)

Fig. 94 Elastic cable

Elastic cables for tarpaulins consist of multiple rubber strands which are wrapped in a fabric hose.
They are subject to heavy wear during use.

- ► Clean a dirty elastic cable with a wet cloth.
- ► Replace a damaged, torn, significantly worn elastic cable.

Plastic tension cables (belts)

Fig. 95 Plastic cable / belt

Fabric belts and buckles, plastic tension cables and their holders are subject to the risk of breaking while being used. Robustness and flexibility ensure that these components have a long service life.

- ► Wipe the components (belts, buckles, tension cords, holders) with a wet cloth.
- ► Replace damaged, torn or significantly worn tarpaulin fastening components.

PVC / synthetic fabric

Fig. 96 PVC tarpaulin

A tarpaulin made of synthetic material (PES) with a PVC coating on both sides is a high quality, easy-care material used universally for covering trailer bodies.

- ► Clean the tarpaulin in wet weather (rain, fog) and at average temperatures (20 +/-5 °C).
- ► Do not clean the tarpaulin in strong heat (bright sunshine) or at low temperatures (tarpaulin could stiffen).
- ► Spray the tarpaulin with a plastic / tarpaulin cleaner and allow it to soak in.
- ► If the tarpaulin is very dirty, clean it with a soft brush.
- ► Spray the tarpaulin thoroughly with water e.g. with a high-pressure cleaner or water hose.
- ► Let the surfaces dry out.

Cleaning a tarpaulin with inscriptions on it:

Fig. 97 Inscriptions

- ► Tarpaulin with inscription on it (with lettering, pictures) should be cleaned very carefully. Depending on the inscription / colouring, the cleaning process should be tested in a small area first.
- ► Avoid using high-pressure cleaning devices.
- ► Make sure that the inscription does not come off.

Pay particular attention to:

Tarpaulins which are exposed to the weather conditions for long periods of time, e.g. full sun, could fade or get spots over time.
Condensation can form under tightly sealed tarpaulins due to temperature differences which can encourage mould to grow.

- ► If not used for a long period of time, ensure good air circulation in the trailer body.

Polyester components (GRP)

Fig. 98 GRP (glass fibre reinforced plastic) surfaces

Polyester components have very easy-care, high-gloss surfaces which are not 100% colour-fast.

The GRP surface can fade or change colour over time due to UV irradiation and the effects of the weather.

- ►  Clean the GRP surface with water a neutral cleaning products (e.g. plastic cleaner).
- ► After cleaning the GRP surface, make sure it is dried properly.
- ►  Polish the GRP surface with a mild polishing paste to attain a high-gloss effect.
- ► Apply a coat of wax to seal the GRP surface.
- ► Condensation can form under tightly sealed polyester components due to temperature differences which can encourage mould to grow.
  If not used for a long period of time, ensure good air circulation inside the trailer.

Decommissioning

Trailers which are decommissioned (no longer used) may only be parked on private property.

To commission them again, they need to be subjected to a technical inspection by a public authority e.g. TÜV, DEKRA to ensure they are free of defects.

Pay attention to national regulations here.

- ► Secure the vehicle against unauthorised used by third parties e.g. secure the electrical supply from being switched on.
- ► Do not part the vehicle on a public road.
- ► Park the vehicle so that it does not represent a hazard to any third party, e.g. by tipping over or rolling away.
- ► Release the hand brake if required as the brake callipers could otherwise seize after a long period of not being used.
  Secure the trailer with wheel chocks.
- ► Have any environmentally hazardous operating materials / substances (oil, battery, etc.) professionally removed.

Disposing of trailer / components

- ► Bring the vehicle with trailer body to a car / vehicle recycling facility.
  The specialists at the car/vehicle recycling facility will dispose of the individual components in the proper manner.
- ► Use  , while disassembling components.

Disposing of operating materials

Old oil, lubricants, coolants and refrigerants, fuel as well as batteries and rechargeable batteries are hazardous waste requiring special monitoring.

RISK of environmental pollution!

- ►  Do not dispose of environmentally hazardous materials in the household waste or into the environment. Environmentally hazardous materials must be disposed of in accordance with national, local regulations.

Old oil / lubricants

- ►  , old oil, lubricants, oily rags, and hoses must be placed into appropriate vessels and disposed of.

Tyres

- ►  Old tyres must not be disposed of in the environment. They are disposed of through the local council.
- ► Contact the public waste disposal offices in your country.

Electrical and electronic scrap

- ► Dispose of electrical and electronic components at your local recycling centre (electronic waste recycling).

Batteries

Batteries are subject to the EU Directive 2006/66/EC and can be returned free of charge to the manufacturer.

- ► Remove batteries carefully.
- ► Use  for removal work.

8 Troubleshooting guide

Action in the case of faults

This section contains information on possible faults in the trailer. The information should facilitate the search for the fault source and enable it to be rectified to the extent that the next service station of Humbaur GmbH can be reached.

Faults which occur as a consequence of failing to comply with the operating instruction manual or as a result of a lack of maintenance are not considered.

Unfortunately, we cannot cover all the problems which may occur here.

If there is a serious problem, please contact our **Humbaur Service Partner**.

WARNING

Improper troubleshooting

Improper troubleshooting can cause components to fail - accident risk!

- ► Have faults rectified only by a qualified specialist workshop.
- ► Do not carry out repairs / maintenance on safety-relevant components yourself.

Service / repair work

Any warranty claims become invalid if the trailer or its modules have been altered or disassembled without previous written agreement from Humbaur GmbH.

In both cases, please feel free to contact your local dealer. They are your contractual partner and will be best able to meet your requirements. That also applies if you have bought your Humbaur product online.

The Internet platform acts only as a broker, your contractual partner is always your dealer.

Humbaur Service Partners

can be found at www.humbaur.com
under Dealers/Service: Finding a dealer/service partner

Guarantee and warranty

Obviously, Humbaur is responsible for defective products and damage in terms of legal requirements.

Technical customer service

tel.: +49 821 24929 0
fax.:+49 821 24929 540
email: service@humbaur.com

Address of the manufacturer

Humbaur GmbH
Mercedesring 1
86368 Gersthofen (Germany)
tel.: +49 821 24929 0
fax.:+49 821 24929 100
www.humbaur.com
info@humbaur.com

Spare parts / Accessories

Only use original Humbaur spare parts!

Your local Humbaur dealer can also provide expert advice on accessories. Alternatively you can obtain accessories and spare parts from our Humbaur Webshop.

can be found at www.humbaur.com
under Dealers/Service: Spare parts and accessories
or at: Shop

Spare parts can be procured by specifying the VIN and parts description (article number) by e-mail or by telephone:

Contact parts logistics

tel.: +49 821 24929 0
fax.:+49 821 24929 200
email: parts@humbaur.com

Fault	Possible causes	Remedy
The trailer pulls to the right or to left when driving along.	The load is not evenly distributed.	► Distribute the load evenly.
	The tyre pressures are uneven.	► Set the tyre pressure on all wheels properly.
	The load is inadequately secured and shifts slowly when driving along.	► Align the load evenly and secure the load properly.
	The brakes are incorrectly set / blocking.	► Have faults rectified by a specialist workshop.
The trailer starts to snake when driving along.	The tyre pressure is set incorrectly.	► Set the tyre pressure on all wheels properly - comply with max. compressed air values.
	The speed being driven is too fast for the load and the road conditions.	► Slowly reduce the speed. Adapt your driving to the road conditions.
	Centre of gravity of the load too far to the rear.	► Correct the centre of gravity of the load and move it further forwards.
	Drawbar load is inadequate or negative.	► Correct the load distribution so that there is sufficient drawbar load.
The trailer rattles / squeaks as you drive along.	The load is not secured.	► Secure the load properly.
	The cables or hoses work loose.	► Have faults rectified by a specialist workshop.
	Jockey wheel is not cranked up and comes undone from the attachment points.	► Crank the jockey wheel up. ►Re-tighten the fastening connections or have it repaired in a specialist workshop.
	The handbrake is still engaged.	► Release the handbrake.
	Superstructures / accessories e.g. tarpaulin frame, H-frame, grid attachment, toolbox are not properly fastened.	► Check that the superstructure / accessories are properly fastened.
	Supports are not firmly in place.	► Check that the supports are attached properly.
	Flaps, drop sides are not properly closed / secured.	► Check the locks / bearing points of flaps, drop sides.
	Inadequate lubrication at the lubrication points.	► Re-lubricate the lubrication points.
	A wheel bearing is defective.	► Have faults rectified by a specialist workshop.
	Brake have not been set evenly.	

Fault	Possible causes	Remedy
Brakes smoking / do not release properly.	Brakes are not properly adjusted. Brake callipers return spring slack / broken. Brake shaft jammed (drum brake). Cable or Bowden cable bent / deformed. Wheel brake is dirty / rusty.	► Have faults rectified by a specialist workshop.
Brake is blocking a wheel.	Hand brake is applied.	► Check whether the reverse automatic, hand brake is properly released.
	Jockey wheel, lashing straps blocking / pressing on the brake linkage.	► Raise the jockey wheel properly. ► Detach the lashing strap from the brake linkage.
	Brake callipers seized on the drum.	► Have faults rectified by a specialist workshop.
Braking effect too weak / brakes pulling to one side.	Brake pads worn, greasy or vitrified. Brake not properly adjusted.	► Have faults rectified by a specialist workshop.
The handbrake effect is too weak.	Brake pads not yet run in.	► Check the braking effect after a short run-in time.
	Friction losses in transmission mechanics too large.	► Lubricate / oil the transmission mechanics, Bowden cables.
Reverse braking behaviour.	Some transmission parts have too much play. Shock absorbers or overrun brake faulty. Reverse automatic jammed.	► Have faults rectified by a specialist workshop.
Trailer brakes when decelerating.	Shock absorbers on overrun brake faulty.	► Have faults rectified by a specialist workshop.

Fault	Possible causes	Remedy
The coupling does not engage.	Internal parts of the coupling (spherical cup, shell, spring) are dirty, frozen or not free-moving.	► Clean the components. ►Lubricate or oil the coupling.
	Ball head of the car coupling too large.	► Replace the car coupling (max. Ø 50 mm).
	Coupling height of car does not match coupling height of trailer.	► Check the coupling height of your car. This should be to the middle of the ball head 430 ± 35 mm (according to DIN 74058) from the floor.
	Components of the coupling are worn / faulty.	► Have faults rectified by a specialist workshop.

Fault	Possible causes	Remedy
Drawbar coupling has too much play.	Drawbar coupling is worn.	► Have the drawbar coupling replaced by a specialist workshop.
	Ball head of the car coupling is worn.	► Replace the car coupling (min. Ø 49.5 mm).
	Bend angle has been exceeded	► Align the trailer and car in the same direction.
Trailer cannot be uncoupled.	Ball head of the car coupling is not round (worn).	► Replace the car coupling.
	Trailer and car are standing at an angle to each other.	► Move your car and trailer to a straight position.

Fault	Possible causes	Remedy
The trailer squeaks as you drive along / worn bearing.	Bearing setting too loose or too tight. Foreign body in axle bearing.	► Have faults rectified by a specialist workshop.
	Insufficient lubrication of axles.	► Lubricate the axles as specified by the axle manufacturer.
	Overloading the axles.	► Comply with the axle loads valid for your trailer.
	Suspension of axle on chassis is loose.	► Check the connection elements of the axle with the chassis. ►Tighten the screw connections.
Deformed wheel bolts / wheel screws.	Wheel nuts / wheel bolt tightened with incorrect tightening torque - too tight. Wheel nuts / wheel bolts not properly re-tightened.	► Replace the wheel bolts / wheel nuts / wheel screws and the wheel if required. ►Tighten the wheel nuts / wheel bolts using the specified tightening torque - do not use an impact wrench. ►Have faults rectified by a specialist workshop.
Tyres are worn on one side.	Tyres are unevenly pumped up.	► Check the tyre pressure on all tyres. ►Fill all tyres with the specified tyre pressure.
	Tyre is faulty - losing air.	► Replace the faulty tyre as quickly as possible.
	A wheel shock absorber is faulty.	► Replace the faulty wheel shock absorber.
	Tyres are different ages or different types of tyre have been used.	► Replace different tyres with tyres of the same age and type.
Tyre scraping / knocking on mudguard.	Incorrect wheel size fitted - too large.	► Compare the size of the wheel fitted to the specification in your vehicle documents. ►Replace any wheels which have been fitted incorrectly with permitted wheel sizes.
	Trailer overloaded. Load incorrectly distributed.	► Distribute the load evenly up to the max. permissible gross weight.

Fault	Possible causes	Remedy
Components such as: Ramp wall/ doors / flaps which are supported with gas struts are no longer easy to raise / operate.	Gas struts are too old - pressure has dropped. Gas struts are faulty. Gas struts are deformed.	► Replace the gas struts in pairs with new ones of the same type.
Gas struts dripping / leaking oil.	Gas struts have been installed incorrectly. Seals are too old /become leaky.	► Replace the gas struts in pairs with new ones of the same type.
Cargo bed with dampers cannot be lowered.	Dampers are contaminated with dirt. Damping effect has reduced.	► Clean the dampers (damper pistons). ► If necessary, press the cargo bed down manually.
	Dampers are worn out.	► Replace the dampers in pairs or the damper respectively.

Fault	Possible causes	Remedy
Trailer lighting is not working.	Plug is not connected properly to the socket on the car.	► Plug in the plug until it reaches the end stop in the jack on the towing vehicle - also twist a 13-pin plug.
	Light / bulb is defective.	► Replace the faulty lamp.
	Contacts are defective or dirty.	► Clean the contacts.
	Cable is torn / faulty.	► Have the cable replaced in a specialist workshop.
	Plug is faulty.	► Have the plug replaced in a specialist workshop.
	The configuration of the socket on the car does not match the configuration of the plug on the trailer.	► Have the plug configuration and socket checked by a specialist workshop.
Plug does not fit into the socket on the car.	The socket on the car does not match the plug on the trailer.	► Check whether an adapter can be used. ► Check whether the plug connection is in accordance with ISO 11446 (13-pin) or according to DIN ISO 1724 (7-pin).
Interior lighting not working.	The switch has not been activated.	► Switch on the switch which is on the light.
	Light / bulb is defective.	► Replace the faulty bulb.
	Plug is not plugged into car or respectively, the battery is not supplying power to the trailer.	► Connect the connecting cable to the car.
	Driving lights on towing vehicle not switched on.	► At least switch on side lights.
	Lighting tubes from the linear light faulty or respectively, no 230 V power supply available.	► Check that the external 230 V power supply is available or that the light switch is switched on. ► Replace the faulty lighting tube.
Fuse (FI-switch) on power distributor / circuit breaker triggers.	A faulty current has been detected, e.g. caused by a short circuit.	► Check whether the plug / sockets / electrical equipment / power distributor are exposed to water / moisture. ► Check whether connected electrical equipment is faulty. ► Replace faulty electrical equipment.
Fuse (16A) trips.	Power distributor is overloaded - too much current is being drawn.	► Check that not too many power consumers are on at the same time.

Fault	Possible causes	Remedy
Cylinder does not retract.	A line or screw connection in the hydraulic system is faulty.	► Have the line / screw connection replaced in a specialist workshop.
	A screw connection in the hydraulic system is loose.	► Tighten up the screw connection.
	The oil is too viscous and too cold.	► Ensure that the oil has the requisite operating temperature and viscosity.
	The oil is too old (viscous).	► Have the oil changed in a specialist workshop.
	Cylinder is frozen.	► Defrost the cylinder.
	Line break safety device is activated, but no leakage apparent.	► Use the hand pump (apply pressure). ► After that turn the hand wheel of the hand pump very slowly to open it up (release pressure).

Fault	Possible causes	Remedy
Cylinder does not extend.	Supplied quantity of oil is too low.	► Check the oil level in the oil container. ► Top up oil if required.
	The oil is too viscous and too cold.	► Ensure that the oil has the requisite operating temperature and viscosity.
	Oil pressure in the system is too low.	► Check that sufficient oil pressure is generated by the tractor unit in the case of a towing connection. ► Check that there are no oil leaks, e.g. cracked hoses, leaky connection points.
	Valve wheel on the hand pump is open.	►Close the oil valve wheel on the manual pump and actuate the manual pump once again.
	Cylinder is frozen.	► Defrost the cylinder.

9 Proof of inspection

4 Enter the identification data for your trailer. Have an inspection carried out every six months at the latest and have it confirmed in writing.

Purchase date:_____ **VIN: WHD** _____ **Type:** _____

Handover - Service	10,000 km - Inspection	25,000 km - Inspection
Stamp / Signature Date	Stamp / Signature Date	Stamp / Signature Date
1,000 km - Inspection	**15,000 km - Inspection**	**30,000 km - Inspection**
Stamp / Signature Date	Stamp / Signature Date	Stamp / Signature Date
5,000 km - Inspection	**20,000 km - Inspection**	**35,000 km - Inspection**
Stamp / Signature Date	Stamp / Signature Date	Stamp / Signature Date

40,000 km - Inspection

Stamp / Signature Date

45,000 km - Inspection

Stamp / Signature Date

50,000 km - Inspection

Stamp / Signature Date

55,000 km - Inspection

Stamp / Signature Date

60,000 km - Inspection

Stamp / Signature Date

65,000 km - Inspection

Stamp / Signature Date

70,000 km - Inspection

Stamp / Signature Date

75,000 km - Inspection

Stamp / Signature Date

80,000 km - Inspection

Stamp / Signature Date

Here is space for your notes:

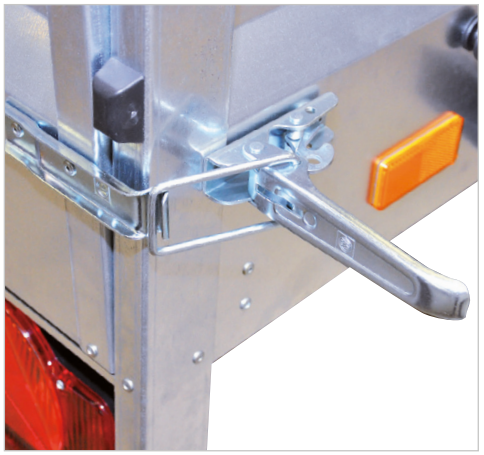
We wish you a pleasant & safe journey

NOTES:

humbaur.com

HUMBAUR

MAKES IT HAPPEN



We assume no responsibility for printing or other errors or omissions. Subject to technical modifications.
All dimensions are approximate values and relate to the series vehicle without accessories.
Printed in Germany. Reprint forbidden · Illustrations similar, some trailers show special equipment ·
Images: Humbaur GmbH, fotolia.de · **Art. no. 007.00072 · Status: 04 / 2021**

Series 1000 - 8400 Humbaur GmbH / Mercedesring 1 / 86368 Gersthofen / Germany / Tel. +49 821 24929-0 / info@humbaur.com / **humbaur.com**