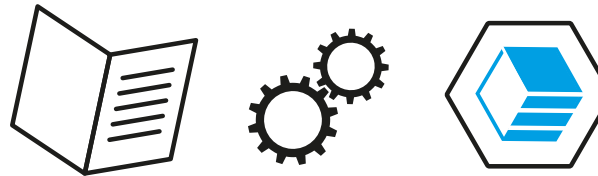


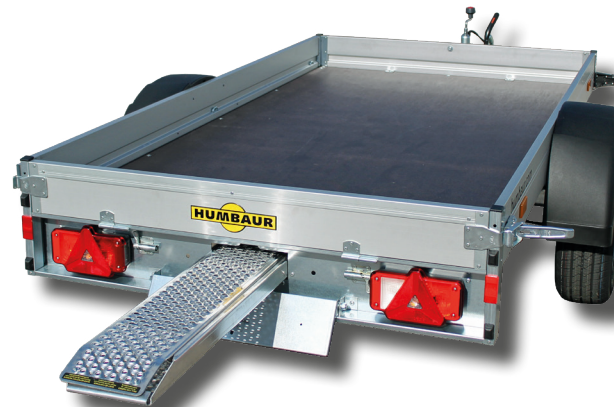
Open box trailer

EN

- ▶ Startrailer Plus
- ▶ Multi
- ▶ HA 500



▶ Startrailer Plus



▶ Multi



▶ HA 500


Humbaur GmbH

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www.humbaur.com
info@humbaur.com

Identification

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

- ▶  Put a cross next to the type of trailer you have acquired.
- ▶ You will find the dimensions / technical data of your trailer in the vehicle documents.

Product name / trade code:

unbraked

Startrailer Plus	H 752513 (1374.610)	<input type="checkbox"/>
Multi	HA 752513 (1374.910)	<input type="checkbox"/>

braked

Startrailer Plus	H 132513 (1385.610) without RSD	<input type="checkbox"/>
Startrailer Plus	H 132513 (1385.680) with RSD	<input type="checkbox"/>
Multi	HA 132513 (1385.910) without access.	<input type="checkbox"/>
Multi	HA 132513 (1385.920) with access.	<input type="checkbox"/>
Multi	HA 132513 (1385.930) with cover	<input type="checkbox"/>
HA 500	HA 132513 (1393.900) with cover	<input type="checkbox"/>

Accessories

▶  _____

Notes on use for target group



This original operating instruction manual is intended for you as the user of a ready-to-use trailer.

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

- Possession of a driver's license valid for trailer operation.
- Healthy physical state (without any limitations, e.g. wheelchair user).
- Practical experience with towing (e.g. initiating braking, manoeuvring backwards).
- Knowledge of load securing / safe transport of a range of goods.
- Knowledge of the relevant national Road Traffic Act and Road Traffic Licensing Regulations.

The contents of this operating instruction manual are intended exclusively for open box trailers without accessories / body components.

Refer to specific installation and operating instructions for information on how to operate accessories / body components.



Read this operating instruction manual carefully and completely before using your trailer for the first time and observe all of the instructions, safety information and warnings. Comply with the steps for handling.

- Ignoring instructions in the manual can lead to personal injuries and material damage.
- Ignoring instructions may also invalidate your warranty entitlement.
- Keep this operating instruction manual carefully for the entire service life of your trailer.
- The operating instruction manual should be passed on to the new user/owner if you rent out or sell your trailer.
- It forms part of the product and also serves as a **CHECK LIST** for regular inspections.
- We advise you to keep the operating instruction manual in the driver's cab and to keep it at hand in case you need to consult it.

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Startrailer Plus (unbraked/ braked)



General view: Basic model H752513 - unbraked



General view: Basic model H132513 - braked



Rear view: Tailgate / drop sides 300 mm



Option: with flat cover



Option: with high cover / frame



Option: with side wall extension 300 mm

Technical data

	unbraked	braked
Weights / Loads	H 752513	H 132513
Gross (permitted GW)	750 kg	1300 kg
Net (unladen weight)	148 kg	222 kg
Load capacity (goods)	602 kg	1078 kg
Drawbar load max.	50 kg	100 kg
Tyres	H 752513	H 132513
Standard	145 / 80 R13	185 / 65 R14
	on rims 4-4.5Jx13 ET30	on rims 5J-6J x 14 ET30
Other permitted tyre sizes:	135 / 80 R13 155 R13 RF 155 / 80 R13 175 / 70 R13 155 R13 C	195 / 65 R15 185 R14 C 195 R14 C

Features

- Aluminium drop sides 300 mm high
- Rear drop side can be folded down / removed
- Front / side drop sides fixed / do not fold down
- Drop side locks in the form of surface-mounted latches
- Screen floor plate 12 mm thick
- Round buttons for securing a tarpaulin / cover net using elastic cable
- 3 pairs of tie-down brackets for load securing (400 daN)

Optional accessories

- Flat cover
- Crossbar for flat cover
- Frame / high cover
- Side wall extensions (300 mm)
- Prop stands
- Jockey wheel, wheel chocks (for unbraked trailer)

Multi (unbraked / braked)



General view: Basic model H752513 - unbraked



General view: Basic model H132513 - braked



Rear view: Tailgate / drop sides 150 mm



Option: Motorcycle rocker, loading ramps, side extension 1x



Option: Flat cover / side extensions 2x



Option: Aluminium cover / side extensions 3x

Technical data

	unbraked	braked
Weights / Loads	H 752513	H 132513
Gross (permitted GW)	750 kg	1300 kg
Net (unladen weight)	180 kg	215 kg
Load capacity (goods)	570 kg	1085 kg
Drawbar load max.	50 kg	100 kg
Tyres	H 752513	H 132513
Standard	145 / 80 R13	185 / 65 R14
	on rims 4-4.5Jx13 ET30	on rims 5J-6J x 14 ET30
Other permitted tyre sizes:	135 / 80 R13 155 R13 RF 155 / 80 R13 175 / 70 R13 155 R13 C	195 / 65 R15 185 R14 C 195 R14 C

Features

- Aluminium drop sides 150 mm high
- Rear drop side can be folded down / removed
- Front / side drop sides fixed / do not fold down
- Drop side locks in the form of surface-mounted latches
- Screen floor plate 12 mm thick
- Round buttons on side wall extensions for securing a tarpaulin / cover net using elastic cable
- 3 pairs of tie-down brackets for load securing (400 daN)
- Ramp slot pre-installed (without loading ramps)

Optional accessories

- Flat cover
- Crossbar for flat cover
- Frame / high cover
- Side wall extensions (300 mm)
- Prop stands
- Jockey wheel, wheel chocks (for unbraked trailer)
- Motorcycle rocker
- Aluminium cover on side wall extension
- Loading ramps (made of aluminium, approx. 9 kg / pair)

HA 500 (braked)



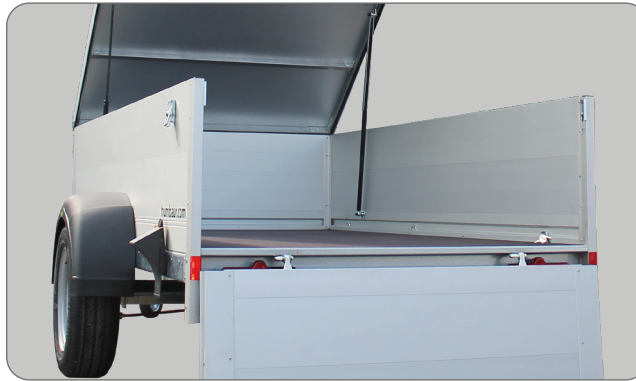
General view: with aluminium cover and supports



Rear view: Tailgate / drop sides 500 mm



Rear view: Aluminium cover open



Rear view: Tailgate / aluminium cover open



Rear view: Aluminium cover can be locked



Rear view: Supports for bicycle stand, for example

Technical data

		braked
Weights / Loads		H 132513
Gross (permitted GW)		1300 kg
Net (unladen weight)		257 kg
Load capacity (goods)		1043 kg
Drawbar load max.		100 kg
Tyres		H 132513
Standard		185 / 65 R14
		on rims 5J-6J x 14 ET30
Other permitted tyre sizes:		195 / 65 R15 185 R14 C 195 R14 C

Features

- Aluminium drop sides 500 mm high
- Rear drop side can be folded down / removed
- Front / side drop sides fixed / do not fold down
- Latches on rear drop side, recessed
- Screen floor plate 12 mm thick
- Aluminium cover with 2x crossbars, supported at front
- 3 pairs of tie-down brackets for load securing (400 daN)

Optional accessories

- Prop stands

1 Safety and warning instructions

1.1 Signal words

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



Possible risk with high level of risk

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



Possible risk with medium level of risk

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



Possible risk with low level of risk

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

NOTICE

Possible risk of material damage

Not preventing this risk could result in material damage.

1.2 Text signs

- ▶ (Arrow) Request for action
- (Bullet point) List
- 1. (Number) List of components

1.3 Warning signs / pictograms

1.3.1 Danger signs:



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



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



Crushing / impact risk!
For body / body parts.



Risk of falling!
People may fall and injure themselves.



Risk of slipping!
On smooth / wet / slippery surfaces.



Risk of tripping!
Obstacles on moving surfaces / in the working area.

1.3.2 Prohibitory signs:



Access prohibited for unauthorised persons!



Spraying with water prohibited (high-pressure cleaner)!



Standing on surface / area prohibited!



Climbing up prohibited!

1.3.3 Mandatory signs:



Important information - take note!
Note and observe to ensure safe use.



Read operating instruction manual beforehand!



Wear sturdy footwear!



Wear protective gloves!



Disconnect from the mains power!



Carry out work in 2-man operation!

1.3.4 Other important pictograms:



Dispose of old tyres correctly!
Do not dispose of tyres in the environment!



Problem waste!
Do not dispose of waste in the environment / with the domestic waste!



Banksman / second person required!



Risk of polluting the environment!

2 General safety instructions



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 Humbaaur spare parts and accessories.
- ▶ Find out which accessories you are allowed to attach independently and what needs to be carried out in a specialist workshop.

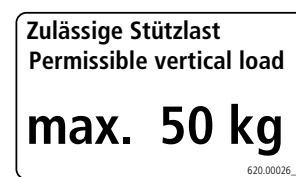
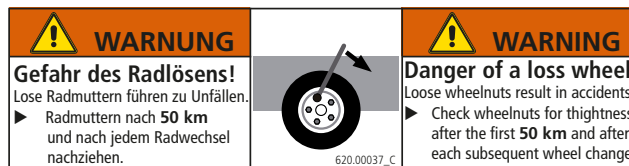
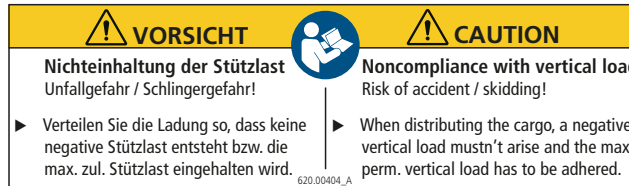


Furthermore, as a road user, you are obliged to observe all national regulations for driving a vehicle with trailer and to comply with your obligations as the owner of a commercial vehicle.

- This includes carrying out regular service and maintenance and periodically subjecting your trailer to a full technical inspection.

2.1 Stickers on the product

- Your attention is drawn to the residual risks on the trailer.
- ▶ Pay attention to the instructions and comply with the maximum values / forces specified.



2.2 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 allow children to play unsupervised near your trailer.
- ▶ Keep children well away when manoeuvring with the trailer.

2.3 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 maximum permissible towing speed.

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.

Gusts of wind / side wind!

In the event of strong 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.

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. The braking distance increases.

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



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

Loose wheel nuts / wheel bolts!

The wheel nuts / wheel bolts could come loose.

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 seated securely at regular intervals.

 ! WARNUNG	 ! WARNUNG
Gefahr des Radlöstens! Lose Radmuttern führen zu Unfällen. ▶ Radmuttern nach 50 km und nach jedem Radwechsel nachziehen.	Danger of a loss wheel! Loose wheelnuts result in accidents. ▶ Check wheelnuts for tightness after the first 50 km and after each subsequent wheel change.

620.00037_C

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.

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 - risk of accident!



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

! 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 that the maximum permissible drawbar load is complied with.
- ▶ Do not exceed the maximum 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.

 ! VORSICHT	 ! CAUTION
Nichteinhaltung der Stützlast Unfallgefahr / Schlingergefahr!	Noncompliance with vertical load Risk of accident / skidding!
▶ Verteilen Sie die Ladung so, dass keine negative Stützlast entsteht bzw. die max. zul. Stützlast eingehalten wird.	▶ When distributing the cargo, a negative vertical load mustn't arise and the max. perm. vertical load has to be adhered.

620.00404_A

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.

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.

2.4 During loading / unloading

! 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.

 ! WARNUNG		 ! WARNUNG
Unzureichende Beleuchtung beim Be- und Entladen! Erhöhte Unfallgefahr. ▶ Sichern Sie den Anhänger mit zusätzlichen Signaleinrichtungen.		Inadequate lighting during loading and unloading! Increased risk of accidents. ▶ Secure the trailer with additional signalling devices.

620.00038

2.5 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).

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.

3 Intended use

- Transporting goods.
- Operation within the permissible gross weight (see information in registration certificate part I + II).
- Operation with a suitable permitted towing vehicle and a permitted coupling.
- 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.)
- Complying with the maintenance and repair work as specified by the manufacturer.
- Regular care / cleaning of the trailer to remove dirt / foreign bodies.
- Regularly presenting the trailer for technical examination / inspection.
- Operating with even weight distribution of load.
- Only drive with an appropriately secured load. The driver of the towing vehicle is responsible for securing the load and the equipment for load securing.
- Adhere to the legally prescribed and permitted maximum driving speed and adapt the speed when driving on bad roads or in bad weather conditions.
- Loading and unloading is only permitted in secured areas or on public roads after additional securing measures.
- Securing the trailer against rolling away when parked.



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

1. **Trailer licensing**
2. **Driving license for driving with a trailer**
3. **Presence of vehicle documents and type plate**
4. **Periodic examination / general inspection**

4 Foreseeable misuse

- Transporting persons / animals.
- Transporting hot materials (e.g. tar).
- Transporting hazardous goods such as chemicals or similar.
- Driving with a poorly secured / unsecured load.
- Driving with bad load distribution (load one-sided or in one point).
- Making structural changes to the trailer that were not approved by the manufacturer.
- Unauthorised technical alterations to the trailer.
- Exceeding the maximum permissible drawbar load, load capacity or trailer load.
- Using unapproved spare parts or accessories.
- Driving with a faulty lighting system or malfunctioning lighting system.
- Driving with vehicle body not closed.
- Maintenance of safety-relevant components, such as brakes, drawbar, etc. by a layperson.
- Removing the type plate or VIN on the trailer or making them illegible.
- Driving at an inappropriate / excessive speed in poor weather conditions / road conditions.
- Parking without taking safety precautions to prevent the trailer from rolling, such as: applying the hand brake, using wheel chocks, parking on a level surface.
- 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 / renting out the trailer without handing over the operating instruction manual “documentation” or providing an explanation of the known residual risks.



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

5 Technical data / components

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

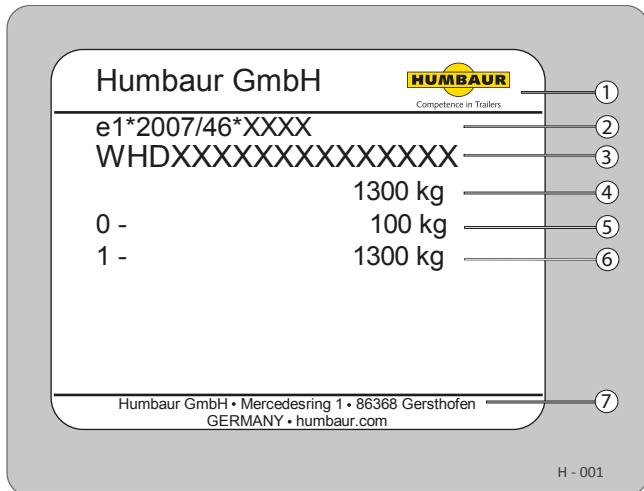
- Vehicle documents:
Registration certificate part II (RC II) and
Registration certificate part I (RC I),
CE certificate of conformity for complete
vehicles “COC - Certificate of Conformity”
 - Type plate (permanently attached to the trailer)
- If you lose the vehicle documents, you need to report it to the police.
- You can request a second copy of the vehicle documents after proving the loss.

5.1 Type plate / VIN

- A type plate is fitted to every trailer. The plate is permanently attached on the right of the front or side drop side viewed in the direction of travel.
 - The type plate provides information about the type of trailer and its origin as well as the maximum permitted loads / weights.
 - The VIN (Vehicle Identification Number) allows us, the manufacturer, to identify your trailer accurately and provide prompt assistance.
- If you have any queries about your trailer, specify the last 6 numbers of the VIN.



Example: VIN engraved / type plate



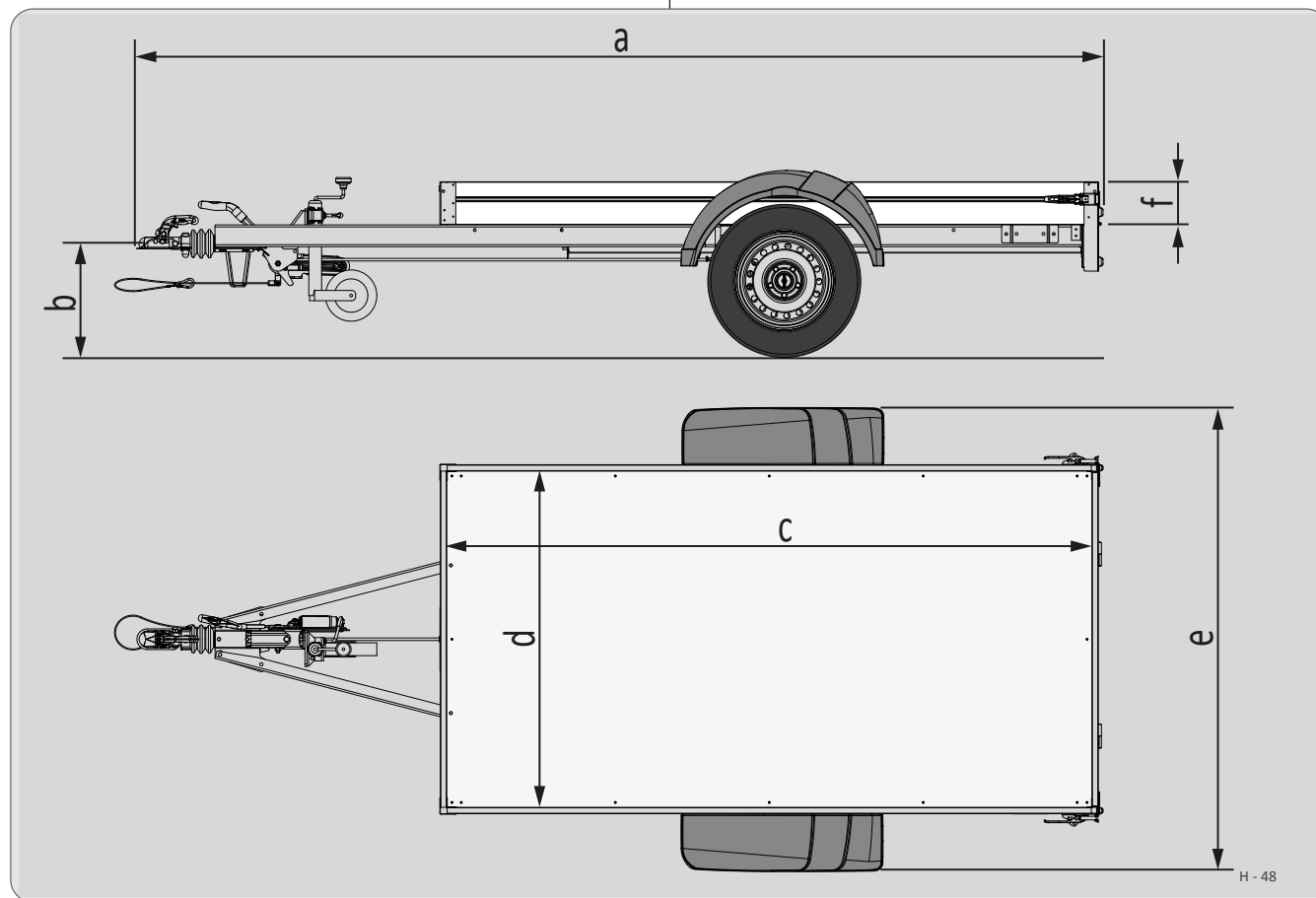
Example: Type plate

1. Manufacturer
2. Number EEC operating license
3. 17-digit VIN
4. Max. permitted total weight
5. Drawbar load
6. Max. permitted weight: Axle 1
7. Manufacturer's address



The identification information (type plate, engraved VIN) must remain legible during the entire life cycle of the trailer.

- The VIN on your trailer is also engraved on the right of the frame / fixed front or side drop side viewed in the direction of travel.
- ▶ Never remove, obscure or paint over the type plate and the engraved VIN on the frame / drop side.



		Startrailer Plus	Startrailer Plus	Multi	Multi	HA 500
		H 752513	H 132513	HA 752513	HA 132513	HA 132513
a	Length	3585	3765	3585	3765	3760
b	Coupling height	465	450	465	450	465
c	Length of cargo bed	2510	2510	2510	2510	2510
d	Width of cargo bed	1310	1310	1310	1310	1310
e	Width	1760	1800	1760	1800	1810
f	Height of drop side	300	300	150	150	500

Approximate dimensions in mm

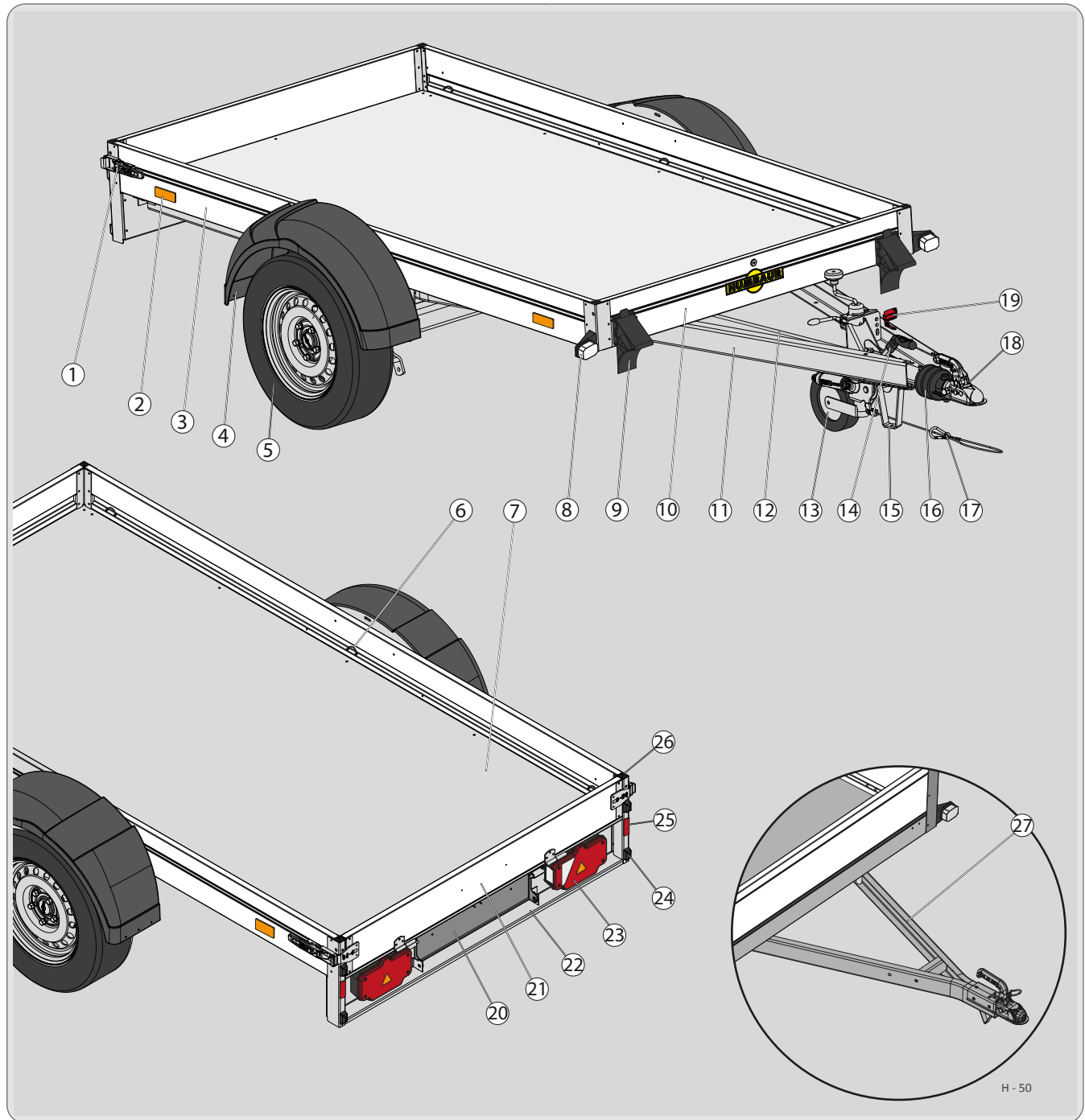


5.2 Components for trailers up to 3.5 t

The following is a list of typical basic components for trailers up to 3.5 t.

You can find a detailed description of the function, type and intended use of the components in this operating instruction manual.

1. Latch
2. Side reflector (orange)
3. Side drop side
4. Mudguard
5. Wheel (tyre)
6. Tie-down point
7. Loading platform / cargo bed
8. Front retro-reflector / position lamp
9. Wheel chocks (only on braked version)
10. Front drop side
11. V drawbar
12. Brake linkage
13. Jockey wheel
14. Hand brake
15. Drawbar support
16. Rubber sleeve
17. Safety cable (braked) / arrester cable (unbraked)
18. Coupling head
19. Parking socket for plug
20. Loading ramp slot / number plate holder (optional)
21. Tailgate
22. Underride protection
23. Multifunctional light
24. Plastic support
25. Rear reflector (red)
26. Stanchion with cap
27. V drawbar without overrun device (unbraked version)



6 Commissioning

- ▶ Carry out the following steps to drive with a trailer.



The towed trailer must always be approved and free of defects!
Commission on solid, stable and level ground. Do not obstruct the traffic on the roads. Do not impede road users / people and do not expose them to risks.

- 1 Position towing vehicle in front of the trailer.
- Trailer should be aligned with the towing vehicle (in a straight line).
- 2 Secure the towing vehicle to prevent it from rolling away.
- 3 Release hand brake on the trailer (if present).
- 4 Couple the trailer / secure safety cable, arrester cable.
- 5 Remove wheel chocks and secure in brackets.
- 6 Raise jockey wheel / supports (if present).
- 7 Plug electric systems into socket on car.
- 8 Carry out departure check.



To avoid accidents and prevent personal injury and material damage, it is important to carefully check the condition and function of the trailer before setting off. The listed components may vary depending on your trailer equipment and type.



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).

- ▶ Check your trailer regularly for defects.
- ▶ Rectify faults / defects of have them repaired immediately in a specialist workshop.



Example: Trailer unbraked, coupled



Example: Trailer closed / lighting functions

- ▶ Carry out a departure check.

Components		Testing
Coupling head	✓	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?
Hand brake lever (if present)	✓	is released?
Plug connection (electric system)	✓	is firmly connected and secured?
Electric cable	✓	does not rest / drag on the ground and is not wound too tightly around the drawbar?
Jockey wheel (if present)	✓	has been cranked up correctly and secured?
Wheel chocks	✓	are removed and secured in holders?
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, position lamps	✓	are working / undamaged?
Anti-theft device	✓	has been removed and stowed away safely?
Tailgate	✓	is closed and secured or removed for the transportation of long materials?
Attachments / accessories (e.g. cover, tarpaulin)	✓	have been locked and secured?

Departure checklist

6.1 Hand brake without push button

Functional explanation

- A hand brake (parking brake) is designed to prevent the trailer from rolling away.
- Braked trailers have an overrun device with brake linkage and brake compensation.
- Unbraked trailers do not have a hand brake / parking brake.
- The hand brake without a push button needs to be moved beyond a ratchet point.

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.



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.

CAUTION

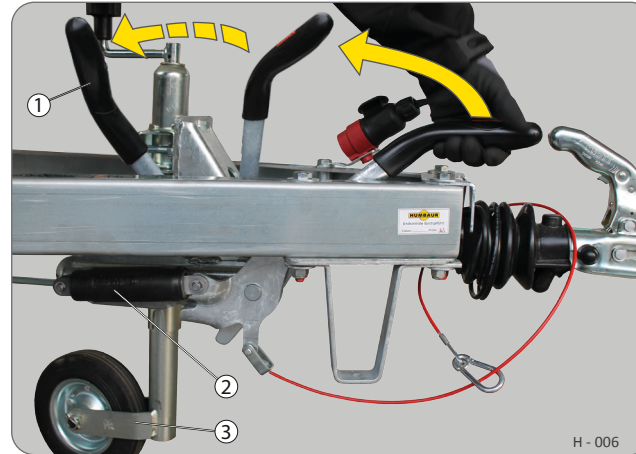


Operating the hand brake!

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

- ▶ Operate the hand brake slowly and carefully.
- ▶ Make sure that your hand and body are outside the crushing / movement area.

Engaging the hand brake



Engaging the hand brake

1. Hand brake lever, engaged / top
 2. Spring mechanism, extended
 3. Jockey wheel (in parking position)
- ▶ Wind down the jockey wheel (3) until it reaches the floor.
 - ▶ Pull up the hand brake lever (1) beyond the resistance point so that the brake is fully applied.
 - ▶ Push the trailer back slightly.
The spring mechanism (2) fully applies the hand brake.

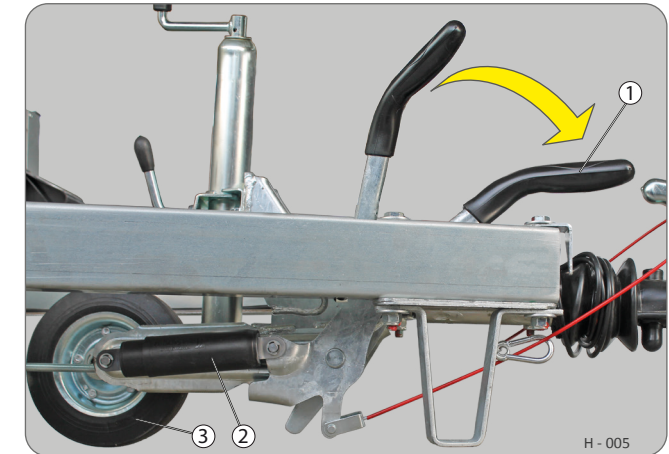
CAUTION

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.

- ▶ Always apply the hand brake completely - if applicable, push the trailer backwards slightly so that the full braking force is reached.
- ▶ When parking your trailer, make sure there is enough space behind it.

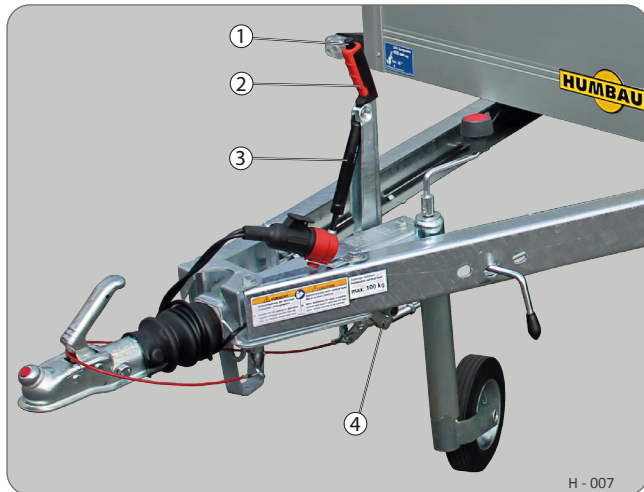
Releasing hand brake



Releasing hand brake

1. Hand brake lever, released / down
 2. Spring mechanism, retracted
 3. Jockey wheel (in driving position)
- ▶ Push the hand brake lever (1) beyond the ratchet point completely downwards towards the coupling.
The spring mechanism (2) is retracted / released.

6.2 Hand brake with push button



Hand brake with push button (parking position)

1. Release button
2. Hand brake lever, engaged / top
3. Gas strut, extended
4. Brake linkage, applied

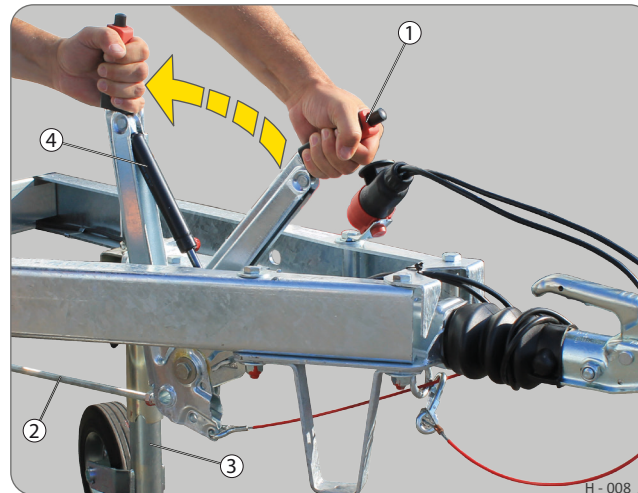
Functional explanation

- Hand brakes with a push button do not need to be pushed beyond a ratchet point.
- The hand brake is released using a push button.



On a hand 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.

Engaging the hand brake

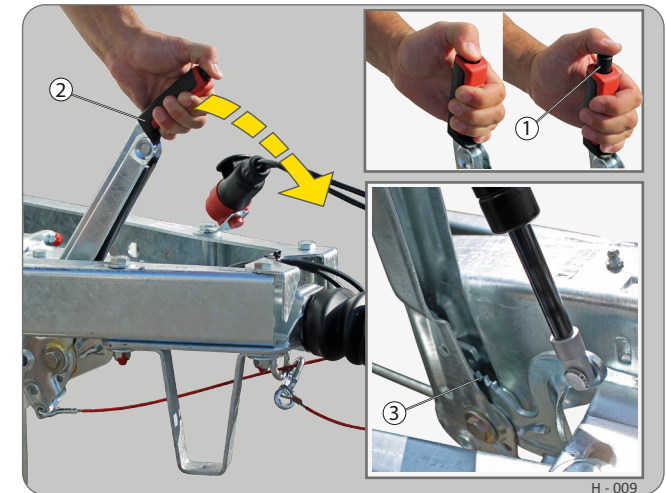


Engaging the hand brake

1. Hand brake lever
2. Brake, applied
3. Jockey wheel (in parking position)
4. Gas strut

- ▶ Wind down the jockey wheel (3) until it reaches the floor.
- ▶ Pull the hand brake lever (1) as far up as possible so that the brake (2) is fully applied.
- ▶ Push the trailer back slightly. The gas strut (4) fully applies the hand brake.

Releasing hand brake



Releasing hand brake

1. Release button
2. Hand brake lever
3. Gearing / Locking system

- ▶ Pull the hand brake lever (2) slightly upwards while at the same time pressing the release button (1).
- ▶ Guide the hand brake lever all the way down towards the coupling. The gearing is released by the locking mechanism (3). The hand brake lever rests on the overrun device.



Hand brake released (driving position)

6.3 Trailer safety

Functional explanation

- Unbraked trailers (up to 750 kg) are fitted with an arrester cable.
- The arrester cable prevents the trailer from coming uncoupled from the car in the event of the trailer coupling disconnecting.
- Braked trailers (from 750 kg to 3500 kg) are fitted with a safety cable.
- In the event of the trailer coming unhooked, the safety cable will trigger automatic braking.



Driving without the arrester / safety cable attached is prohibited by law!
Attaching the arrester / safety cable incorrectly is dangerous and can result in fines in other countries!



Make sure the safety cable loop is sufficiently long to allow cornering.

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.

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

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.



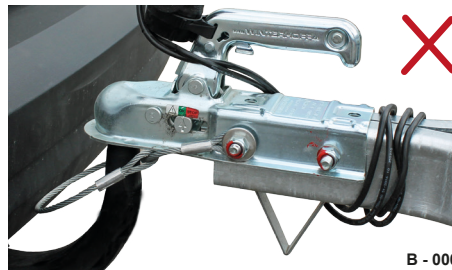
Pay attention to the safety information and operating instructions from the manufacturer of the trailer coupling on the car.

DANGER

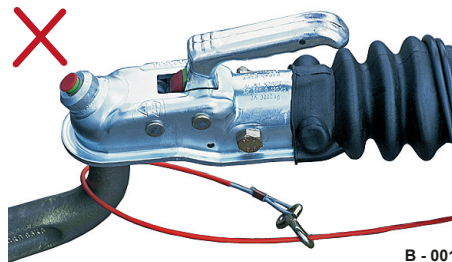
Driving with arrester / safety cable incorrectly attached!

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!



B - 000



B - 001

- ▶ 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



H - 011

Example: Coupling with ring

1. Ball head coupling
2. Ring
3. Snap hook, attached

Ball head couplings according to EEC 94/20



H - 012

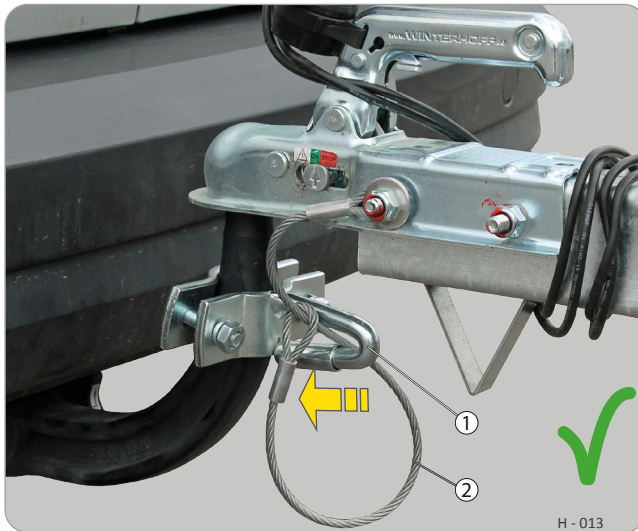
Example: Coupling with clamping device

1. Universal clamping device
- ▶ If you have an older model coupling, retrofit a universal clamping device (1) according to EEC 94/20.



Pay attention to the installation instructions to mount the universal clamping device correctly (# 700.00986).

6.3.1 Attaching the arrester cable (unbraked)

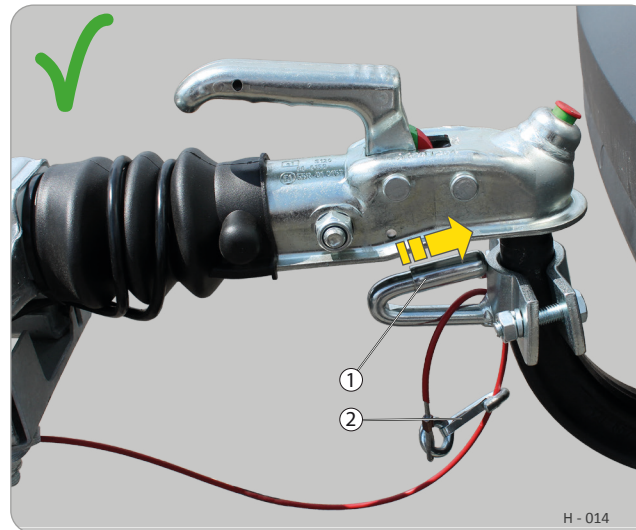


Arrester cable attached

1. Hook, locked
2. Arrester cable, secured

- ▶ Place the coupling head onto the ball head on the car coupling - make sure that it is locked.
- ▶ Pull the locking mechanism on the clamping device (1) while simultaneously inserting the arrester cable (2) in a loop.
- ▶ Release the locking mechanism.
The arrester cable is inserted and secured.
- ▶ Check that the required swivel range for the ball head coupling is ensured.

6.3.2 Attaching the safety cable

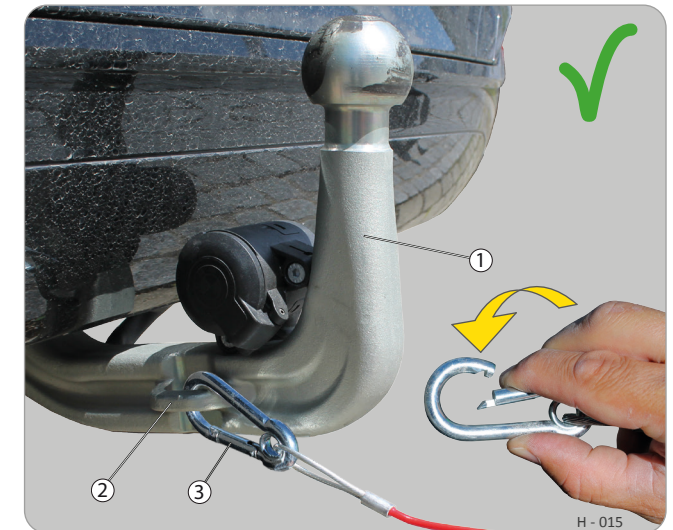


Safety cable attached

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

- ▶ Place the coupling head onto the ball head on the car coupling - make sure that it is locked.
- ▶ Pull the locking mechanism on the clamping device (1) while simultaneously inserting the safety cable (2) in a loop.
- ▶ Release the locking mechanism.
The safety cable is inserted and secured.
- ▶ Check that the required swivel range for the ball head coupling is ensured.
- ▶ Ensure that the spring hook (2) is closed.

6.3.3 Securing the snap hook (DIN 5299)



Safety cable attached using snap hook

1. Ball head coupling, retractable
2. Ring, on side
3. Safety cable with snap hook, secured

- ▶ Press in the snap fastener on the snap hook.
- ▶ Hook the snap hook (3) onto the ring (2).
The snap fastener on the snap hook closes automatically once it has been released.
- ▶ Make sure that the safety cable is not dragging on the ground.



The snap hook must meet standard DIN 5299 and have a length of 70 mm and a diameter of 7 mm (shape C / load-bearing capacity 180 kg). Only this design of snap hook may be attached directly to the coupling on the car! Smaller snap hooks may only be hooked into the safety cable in a loop!

6.4 Coupling / uncoupling the trailer

Functional explanation



- A coupling head is used on car trailers fitted with a \varnothing 50 mm ball head mounting.
- Always note and observe the maximum drawbar load and trailer load of the ball head coupling.

WARNING



Impact risk during coupling process!

Body parts in the area around the coupling may be crushed or struck during the coupling process.

- ▶ Manoeuvre the towing vehicle carefully towards the trailer.
- ▶  Make sure that no one is standing in the area around the coupling.
- ▶  If necessary, arrange for an assistant to help manoeuvre the vehicle using hand signals.

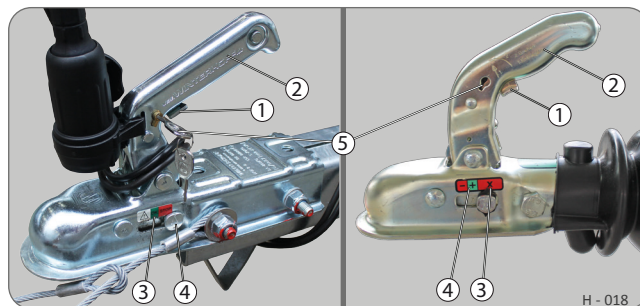


Operate the coupling head!

Your hands / fingers may be crushed between the coupling head and ball head coupling on the car.

- ▶ Always hold the coupling by the handle.
 - Do not grasp the ball mounting (spherical cup) from below.
 - ▶ Hold the drawbar / draw tube / handle when manoeuvring the trailer.
-
- ▶ Only release the hand brake once the trailer is securely coupled.
 - ▶ Remove the wheel chocks.

6.4.1 Coupling head



unbraked

braked

1. Safety catch
2. Handle
3. Wear indicator
4. Safety display
5. Plug lock (anti-theft device)



The ball head on a car trailer coupling as well as the coupling head 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 different wear indicators on the coupling head are there for your safety. These display the status and wear of the ball head and the coupling cup / spherical cup.

WARNING

Driving with a worn coupling head!

Trailers can become detached, skid or tip over while driving - risk of accident!

- ▶ Do not drive with a worn / dirty coupling head.
- ▶ Before setting off, make sure that the coupling head has clicked into place and the safety indicator is in the green / positive area.
- ▶ A ball head on the car coupling with a diameter of less than 49 mm needs to be replaced.

Wear check

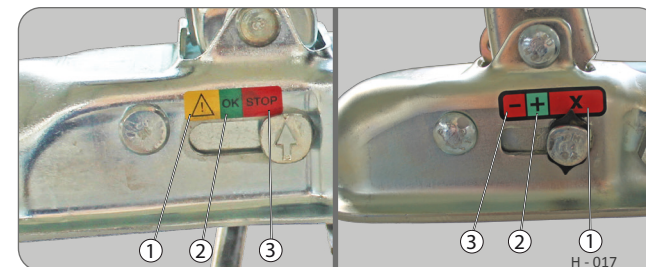


Ball coupling from below

1. Spherical cup
2. Coupling cup

Checking coupling wear

- ▶ Regularly inspect the state of the coupling cup (2) and the spherical cup (1).
- ▶ Before every trip, check the condition of the ball head on your car trailer coupling.
 - The ball head must not have any visible grooves.

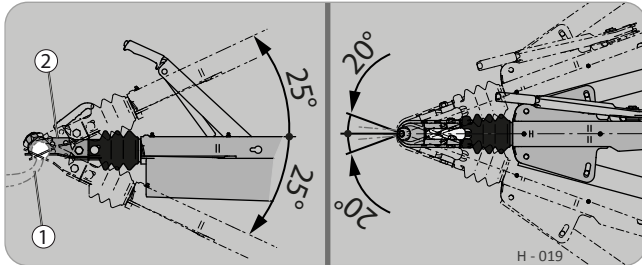


unbraked

braked

1. **Marking is outside the wear indicator range or within area X**
 - The coupling on the trailer has not been properly coupled.
2. **Marking is within green / + / OK area**
 - Ball head coupling is in new condition.
 - Wear of the ball head is in the permitted range.
3. **Marking is within red / - / STOP / area**
 - Ball head on the car trailer coupling or trailer coupling head is worn.

6.4.2 Coupling / uncoupling




Maximum swivel range

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

- ▶ Before connecting up your trailer for the first time, make sure that the car trailer coupling is aligned with the coupling head on the trailer:

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

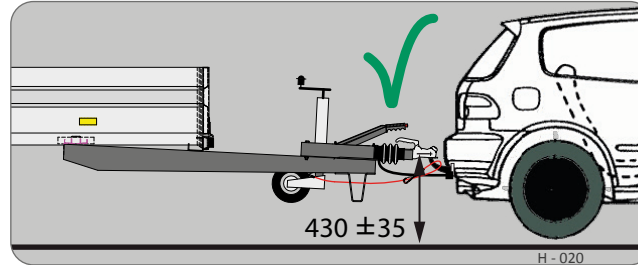
 Only to be used with ball head coupling according to Directive 94/20/EC or ECE R55 with a 50 mm Ø ball head.

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.



The height of the coupling head

 Coupling heads for trailers are built to DIN 74058 or ISO 1103 with a height of 430 ± 35 mm.

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

 The ball head must be greased to prevent premature wear and the formation of grooves on the ball head and in the coupling housing (spherical cup).

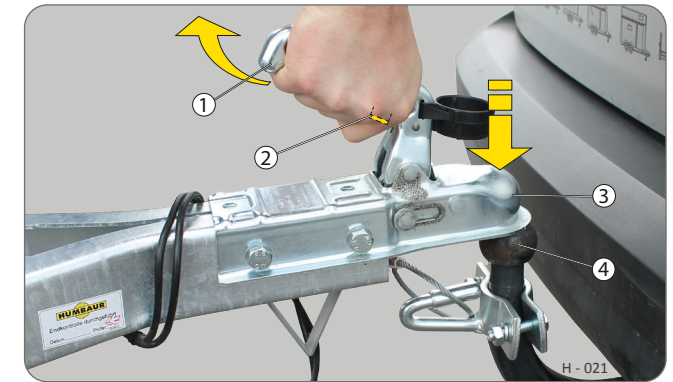
WARNING

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.
- ▶ Adjust 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.

Coupling process



Coupling unbraked trailer

1. Handle
2. Safety catch
3. Spherical cup
4. Ball head

- ▶ Press the safety catch (2) all the way in.
- ▶ Pull the handle up (1) completely and release the safety catch.
- ▶ Place the spherical cup (3) on the ball head (4).
If there is sufficient drawbar load, then the coupling head will click into place by itself.

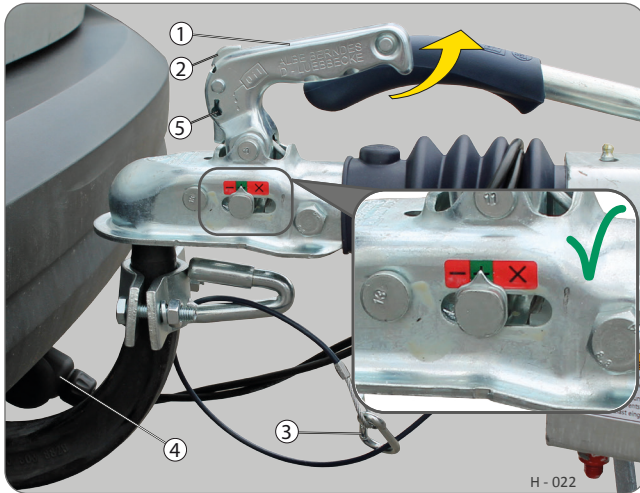
If there is insufficient drawbar load:

- ▶ Press the coupling head down manually until it clicks into place.
- ▶ Check that the coupling head is seated correctly.
 - The safety catch must lock the handle into place.
 - The wear indicator is in the green / + area.

WARNING

Deformed handle and safety catch!

- ▶ Damage / deformation can cause malfunctions!
- ▶ Do not stand on the handle.
- ▶ Have the ball head coupling replaced if faulty.



Braked trailer coupled

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

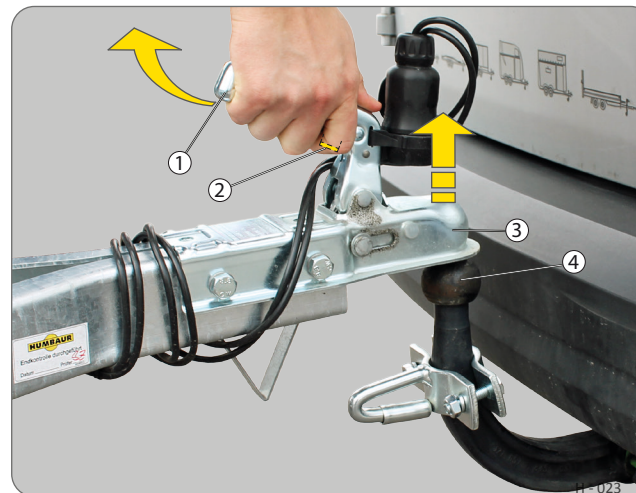
Check

- ▶ Check the visual wear / safety indicator. It must be within the green / + area.

Attempt to lift:

- ▶ To check, pull the handle upwards (1) without actuating the safety catch (2). The coupling head may not lift off the ball head.
- ▶ Attach the arrester/ safety cable (3) to the device or an eye on the vehicle's drawbar
- ▶ Connect the electric plug (4) to the socket on the car's trailer coupling.

Uncoupling process

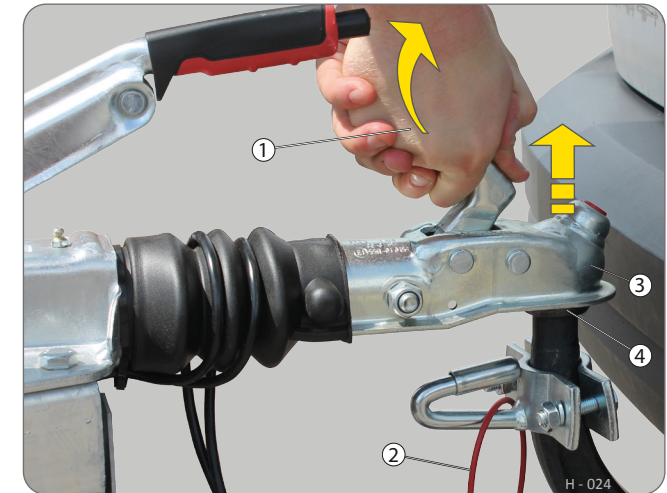


Uncoupling unbraked trailer

1. Handle
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 on the locking mechanism.
 - ▶ If applicable, lower the jockey wheel / support device.
 - ▶ Press the safety catch (2) all the way in.
 - ▶ Pull the handle (1) all the way up.
 - ▶ Lift the spherical cup from the ball head (4).
- The trailer is uncoupled from the car.



Uncoupling braked trailer

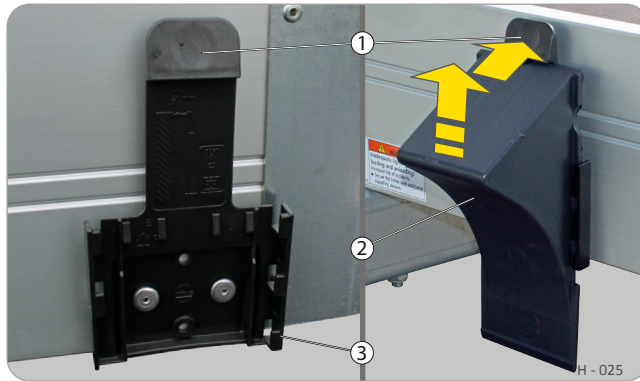
1. Handle
2. Safety cable
3. Spherical cup
4. Ball head

Braked trailer

- ▶ Secure the trailer against rolling away.
 - ▶ Apply the parking brake.
 - ▶ Release the safety cable (2) from the ball head coupling.
 - ▶ Release the electric plug from the car socket.
 - ▶ Unlock the handle on the locking mechanism.
 - ▶ Press the safety catch (if present) all the way in.
 - ▶ Pull the handle (1) all the way up.
 - ▶ Adjust / wind down the jockey wheel to lift the spherical cup (3) from the ball head (4).
- The trailer is uncoupled from the car.

6.5 Wheel chocks

Removing the wheel chocks



Wheel chock secured (driving position)

1. Lever
2. Wheel chock
3. Holder

Functional explanation

- Wheel chocks prevent the trailer from rolling away.
 - The wheel chocks can be stowed at the front right / left or on the drop side.
 - Wheel chocks are only standard on braked trailers.
- ▶ Press in the lever (1) on the holder (3).
 - ▶ Slide out the wheel chock (2) at the same time.
 - ▶ Remove the wheel chock from the holder.

WARNING

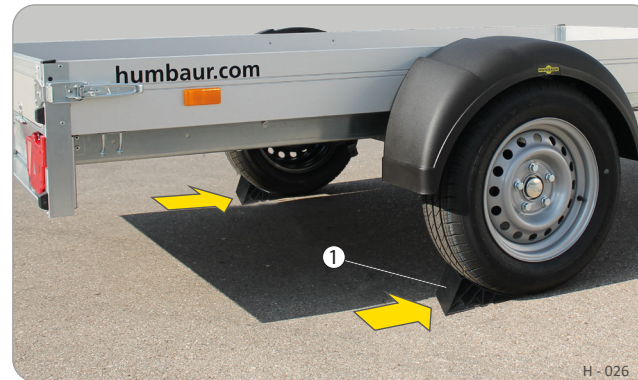


Unsecured trailer at risk of rolling!

An uncoupled parked trailer could start moving spontaneously - risk of accident!

- ▶ Place the wheel chocks (right+left) under the wheels before uncoupling your trailer.
- ▶ Make sure that the wheel chocks are positioned correctly when the trailer is parked on a slope.

Placing the wheel chocks



Wheel chock (parking position)

1. Wheel chock, positioned

- ▶ Check the ground conditions.
Make sure that the ground is sufficiently stable.
If the ground is soft (e.g. sandy, loose chippings), place a solid base underneath.
- ▶ Place the complete surface of the wheel chocks under the wheels.
Consider the direction of inclination of the trailer.

The trailer has been secured to prevent it from rolling away.

Securing wheel chocks

- ▶ Slide the wheel chock into the holder until it engages - a clicking noise can be heard.

The lever prevents the wheel chock from falling out.

WARNING

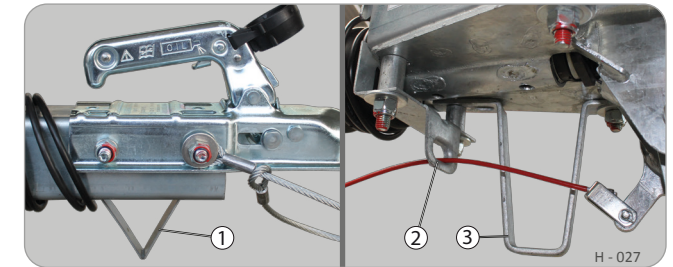
Unsecured wheel chocks!

The wheel chocks could fall out while driving - risk of accidents!

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

6.6 Support devices

6.6.1 Drawbar support



Support

unbraked

braked

1. Drawbar support (unbraked trailer)
2. Ring (for guiding the safety cable)
3. Drawbar support (braked trailer)

Functional explanation



- 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.

CAUTION



Parking trailer on drawbar!

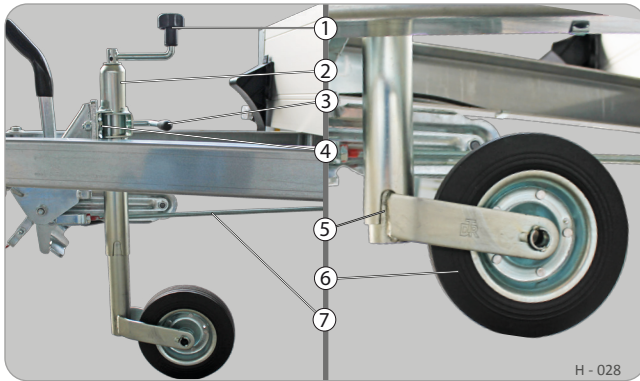
You could crush your feet / hands under the drawbar support.

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

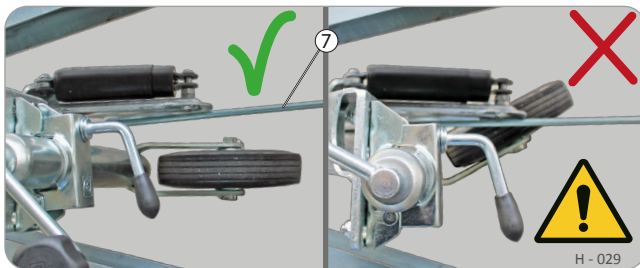


The safety cable must be fed through a guide e.g. a ring (2).

6.6.2 Jockey wheel



Jockey wheel raised



Parking position correct

incorrect

1. Crank handle
2. Cylinder
3. T-handle
4. Attachment console (clamps)
5. Rotation lock (groove)
6. Jockey wheel
7. Brake linkage

Functional explanation

- Jockey wheels are used to support the drawbar while parking / manoeuvring trailers with a drawbar load > 50 kg.



Only unloaded trailers can be manoeuvred with the jockey wheel lowered!
Do not manoeuvre over kerbs / stones.



WARNING

Jockey wheel not cranked up / raised before setting off!

The jockey wheel could be ripped off while driving and catapulted away - risk of accident!

- ▶ Raise / wind up the jockey wheel fully before driving off.
- ▶ Secure the jockey wheel with clamp.
- ▶ Check that the jockey wheel is securely positioned.

Jockey wheel blocking the 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 area around the drawbar when cranking up / raising the trailer.



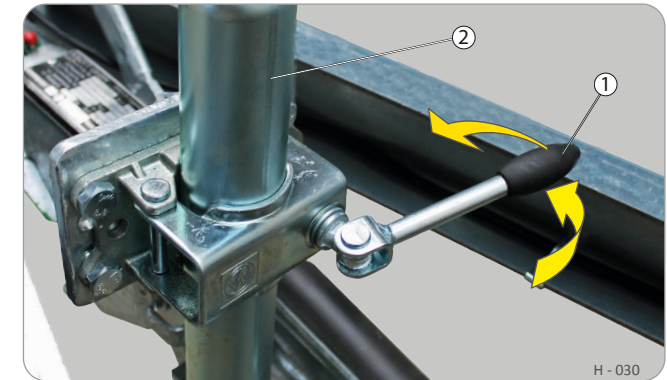
Operating the jockey wheel!

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

- ▶ Keep your fingers away from the crush area.

- ▶ Use  .

Lowering

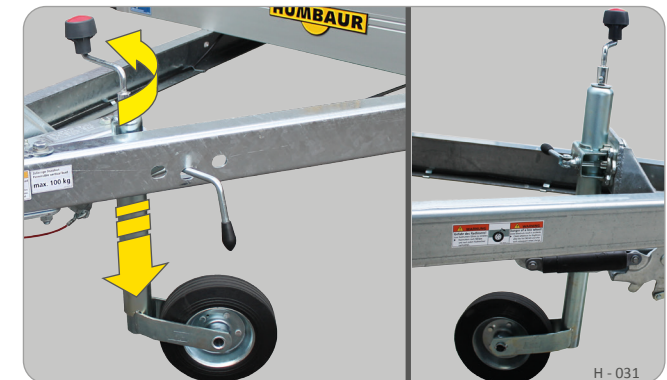


Releasing the jockey wheel

1. T-handle
2. Cylinder

- ▶ Unscrew the T-handle (1) while holding the cylinder (2) tight.
- ▶ Lower the cylinder so that the clamp can be locked in place.
- ▶ Turn the T-handle until it is tight.

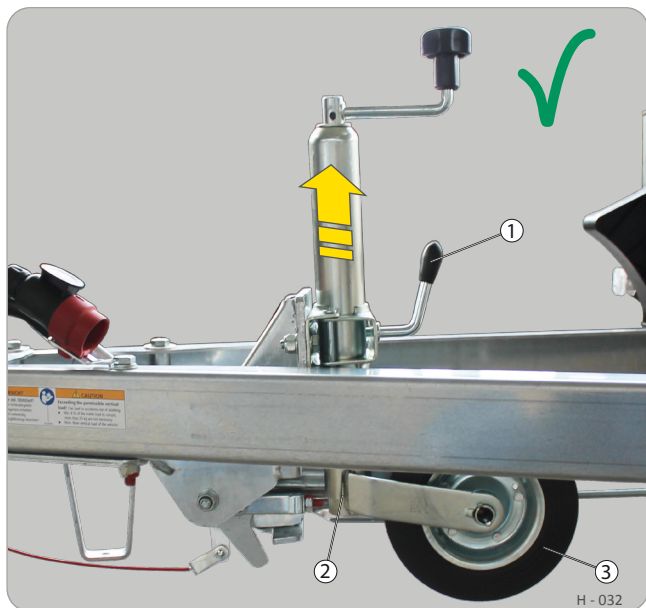
Winding down



Crank down jockey wheel

- ▶ Crank down the jockey wheel until it reaches the floor.
- Trailer must be coupled to the car.

Cranking up / raising



Jockey wheel parked (driving position)

1. T-handle
2. Rotation lock (groove)
3. Jockey wheel

- ▶ Crank the jockey wheel (3) all the way up until the hub of the rotation lock (2) engages in the groove on the cylinder.
- ▶ Unscrew the T-handle (1) 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 is tightly clamping the cylinder.

6.7 Tyres/wheels

Functional explanation

- Wheels / tyres are important safety components on the trailer.
- The tyres are subject to permanent wear while driving as well as to an ageing process and need to be checked regularly.
- 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 / COC papers for your trailer.
- No legal requirements for winter tyres, if using trailer frequently in the winter, we recommend getting winter tyres.

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.

Loose wheel nuts!

The trailer may start to snake, tip over or 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 seated securely at regular intervals (see maintenance table).

Check tyre condition



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.



Check tyre condition

- ▶ Regularly carry out a thorough visual inspection of the tyres. Look out for possible cracks and foreign bodies.
- ▶ Replace the tyres after about 6 years of use. - Rubber becomes porous and brittle over time.
- ▶ Check the pressure of the tyres when cold before setting off and at the latest 14 days later - see maintenance table. The maximum tyre pressure applies for both an empty and a fully laden trailer.
- ▶ Check the profile depth of the tyres around the middle of the tread. In Germany, a minimum of 1.6 mm is required.

Tyre sizes and pressures:

Tyre size	p _{max.} in bar
145 / 80 R13 (unbraked)	3.0
185 / 65 R14 (braked)	3.0

- ▶ Check the tyre pressure on all wheels on a regular basis and before long journeys.
- ▶ Tighten all wheel nuts (crosswise) using a torque spanner:

Rim material	Max. torque in Nm
Steel	100 - 110
Aluminium	120

- ▶ Check that all wheel nuts are seated securely at regular intervals (see maintenance table).

7 Load distribution / securing



To avoid accidents and prevent personal injury and material damage, it is important to carefully check the load distribution and how well it is secured. You should load and unload your trailer with extreme care, taking into account all safety precautions required on public roads and all accident prevention regulations.

Term definition for loads / weight:

Max. permissible total mass (gross weight GW)

Max. permitted mass = trailer net weight + load capacity

- on the type plate and in the “registration certificate” (RC Part I)
- The total mass of the trailer may not 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)

The own weight of unloaded trailer.

Trailer load towing vehicle

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

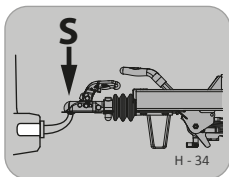
Under no circumstance may the trailer load may not be exceeded by the actual weight of a loaded trailer.

Load capacity

Max permitted load weight of the trailer in kg.

Load capacity = total mass - own mass trailer

Drawbar load (s)



The load in the trailer that presses down on the car coupling.

The maximum permitted drawbar load is stated on a label and the type plate on the trailer and can be found on the registration certificate Part I.

7.1 Load distribution



CAUTION

Non-compliance with the drawbar load!

If the trailer is incorrectly loaded, then negative / inadequate drawbar load, or exceeding the maximum permissible drawbar load can cause accidents. The trailer may start to skid, tip over and be uncoupled from the towing vehicle.

- ▶ Distribute the load (weight) evenly on the cargo bed - avoid single point loading.
- ▶ Distribute the load in such a way that no negative draw bar load is created and the maximum permissible drawbar load is not exceeded.
- ▶ Never exceed the maximum 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 car 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 I.

NOTICE

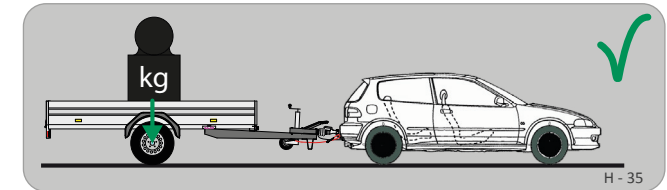
Poor / incorrect distribution of the load!

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 and in the area of the axles.
- ▶ Distribute the load evenly on the cargo bed according to its 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.

Distributing the load on the cargo bed

Correct load distribution



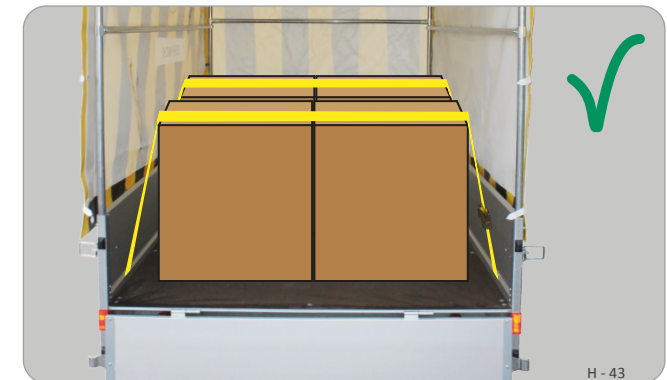
Load in axle area

- 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.



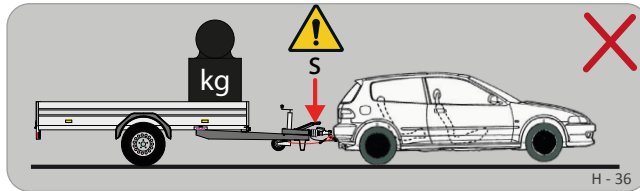
Before loading, check the maximum load capacity that you are able to transport with your trailer.

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



Positioning the goods

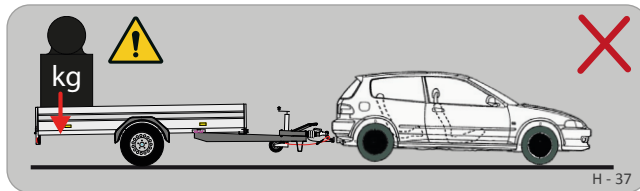
Incorrect load distribution



Load too far forward (toward car)

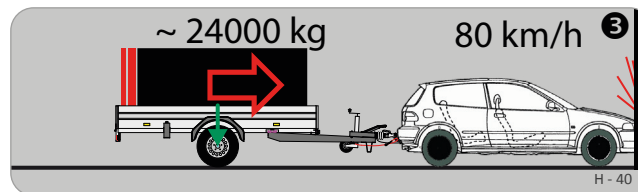
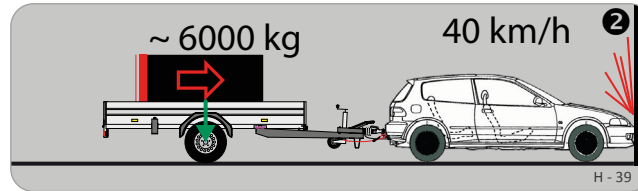
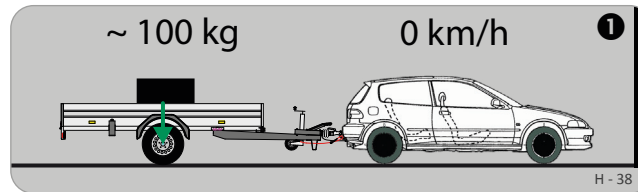
- Heavy weight of load positioned too far forward, the rear of the car is lowered - overloading rear axle and frame.
- The tow hook on the trailer is overloaded.
- Maximum permissible drawbar load is exceeded.
- Poor road holding (reduced ground contact).
- Braking effect is reduced / poor.
- Limited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

Incorrect load distribution



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.

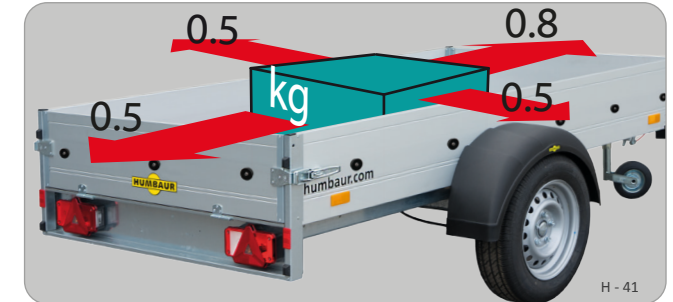


Please note that a small weight / load can become a missile at high speed.

- The weight force [m] is used as the starting point for dimensioning load securing.
- As the speed increases, so does the inertia / centrifugal force of the load:
 - ❶ at 0 km/h = 100 kg kinetic energy
 - ❷ at 40 km/h = ~ 6000 kg kinetic energy
 - ❸ at 80 km/h = ~ 24000 kg kinetic energy

Conclusion

- 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.



Forces to be secured against sliding

- **Securing to the front** (in event of emergency stop)
0.8 or 80% of the weight force - friction force (e.g. 0.3)
e.g. $500 \text{ kg} \times (0.8g - 0.3) = 250 \text{ daN}$
- **Securing to the side / rear**
(when swerving / starting off / cornering)
0.5 or 50% of the weight force - friction force (e.g. 0.3)
e.g. $500 \text{ kg} \times (0.5g - 0.3) = 100 \text{ daN}$

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.

► Counteract the potential release of forces by:

- Correct load distribution
- Using adequate means securing the load in accordance with its weight (tie-down materials, tie-down points)
- Using anti-skid materials (anti-slip mats)
- Securing the load correctly, e.g. with cover net, tarpaulin, side wall extension, H-frame, etc.
- Adapted speed

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	0.1 - 0.2	

Table: Friction force factor

- ▶ Secure the goods positively or non-positively.
 1. positively: goods arranged in such a way as to fill whole cargo bed so it cannot slide.
 2. non-positively: by lashing down using lashing straps, etc.
- ▶ Where possible, combine positive and non-positive load securing.

7.2 Load securing for transport



Load securing is an important safety point when transporting goods. Adhere to national and if applicable international regulations. The goods 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 owner, shipper and sender are equally responsible for the safety of the goods.
- 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 (adapted 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 goods are secured positively and non-positively before driving off.
- ▶ While driving (during breaks from driving) check that the goods are 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.

7.2.1 Tie-down options



Tying the load across the drop sides or by wrapping around the chassis is prohibited! For non-positive securing of the goods, you need to use the tie-down brackets in the drop side profile!



WARNING

Exceeding the maximum tie-down forces!

Failure to comply with the minimum tie-down angle!

The tie-down points can break and the goods would no longer be held securely. If the tie-down angle is $< 30^\circ$, then the load is not tensioned enough.

- ▶ Observe the max. tie-down forces per tie-down point.
 - Observe the maximum specifications on the label on the trailer.

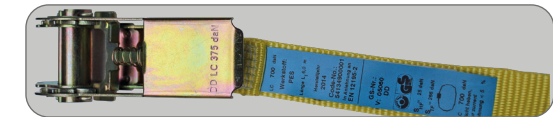


- ▶ Tie down the load to the tie-down points with a tensioning angle of more than 30° .

Using unsuitable / faulty tie-down materials!

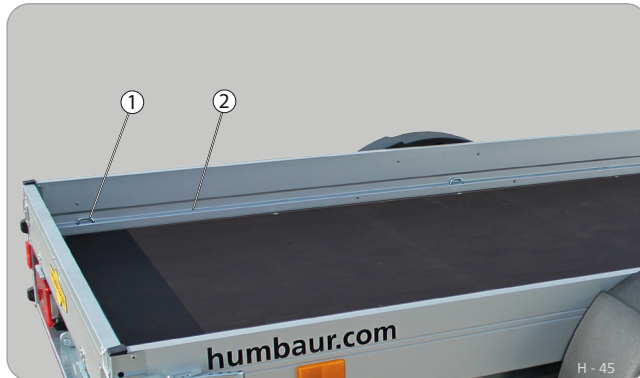
Faulty / unsuitable tie-down materials, e.g. lashing straps, chains, wire cables, cannot hold the goods securely.

- ▶ Only use tested lashing straps (TÜV, GS).



- ▶ Only use lashing 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.

Position of tie-down points

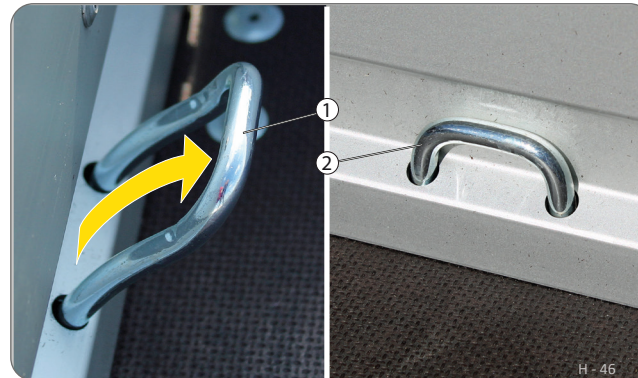


Position of tie-down points

1. Tie-down point (3 pairs per drop-side side)
2. Drop wall profile

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

Tie-down bracket (standard)



Tie-down brackets which can be recessed

1. Tie-down bracket, extended
2. Tie-down bracket, recessed

Tie-down force = max. 400 daN (kg)

- ▶ Lash the goods at the lashing points.

Tie-down materials



Humbaer lashing strap set

1. Lashing strap
2. Lashing strap set

Humbaer lashing strap # 670.00002

- Strap width 25 mm, 6000 mm long
- Force Lc=400 daN, break load 500 daN
- With ratchet

Lashing strap set # 753.00002

packaged in a transparent plastic case (395 x 295 x 106 mm) consisting of:

- 4x lashing strap: Strap width 35 mm, length 5000 mm,
- Break load 1000 daN, with integrated claw hook
- 8x PU edge protection slit 35 mm

8 Loading / unloading



To avoid accidents and 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!

- ▶ Do not exceed the permissible gross weight or the maximum permissible drawbar load / load capacity of the trailer.
- ▶ Ensure the load distribution is correct and the load is safely secured.



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 hand brake.
- ▶ Support your trailer with support devices (jockey wheel) before loading / unloading.
- ▶ If applicable, put wheel chocks in place.
- ▶ Before loading / unloading, check that the trailer is standing securely and cannot roll away.

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 crush or hit people.

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



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 "Loads" of the StVO (German Road Traffic Act).
- ▶ Do not exceed the maximum permissible values according to StVO for protruding goods to the front / rear / side.
- ▶ Make any goods protruding beyond the drop sides / cargo bed visible.





CAUTION

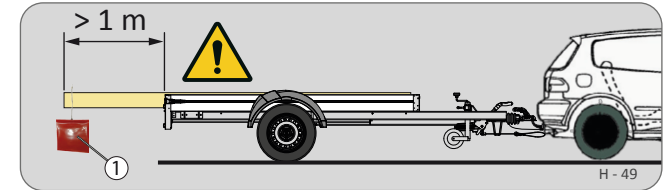


Stepping on the cargo bed!

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 to prevent it from 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 tailgate.
- ▶  Do not climb in over closed drop sides.
- ▶ Do not climb on the mudguards / drawbar.



Marking protruding goods to make them visible

1. Sign/flag (30 cm x 30 cm) or cylindrical body (ø 35 cm x 30 cm), 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).

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



CAUTION

Loading/unloading bulk goods!

The bulk goods loaded on the trailer, e.g. sand, gravel, push against the drop sides / tailgate. The pressure of this can cause the tailgate to snap open after unlocking the latches - impact risk!

- ▶ Before unloading bulk goods, make sure that the load is not pressing against the drop sides / tailgate.
- ▶ If required, first remove the bulk goods pressing on the drop sides / tailgate to relieve the pressure prior to opening.
- ▶ Stand to one side when unlocking the drop sides / tailgate - not directly in front of them.

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 tailgate to transport long loads that protrude beyond the drop sides.

8.1 Drop sides

Functional explanation

- Drop sides form a box shape that enables the load to be secured with a positive fit.
- The front wall and side drop sides are permanently installed.
- The tailgate can be folded down and removed.

WARNING

Unsecured latches / tailgate!

The tailgate may fold down when driving. Goods may be lost - risk of accident!

- ▶ Check that all latches are closed before driving off.

Driving with the tailgate side folded down!

Rear lighting is covered - risk of accident!


- ▶ Remove the rear tailgate when driving with goods projecting to the rear.

CAUTION



Using the latches and operating the tailgate!

Hands could be crushed when opening / closing the tailgate and latches.

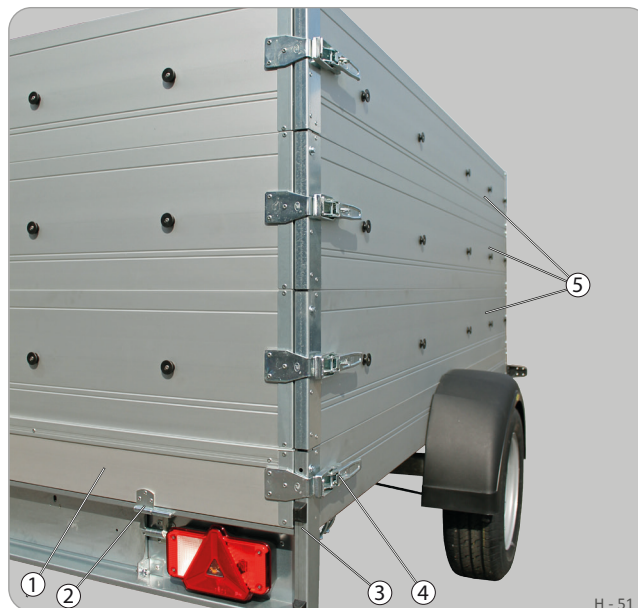
- ▶ Use  .
- ▶ Carefully fold down the tailgate.
- ▶ Do not hold the tailgate you intend to latch directly in the area where the stanchions or latches are.
- ▶ Close the latches with the flat of your hand.



Removing the tailgate / side wall extensions!

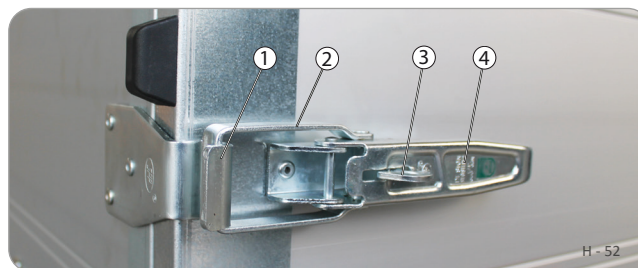
Removed tailgate / side wall extensions may become an obstacle - tripping hazard!

- ▶ Do not place the removed tailgate / side wall extensions directly in the area required for loading / unloading.
- ▶ Secure the removed components to prevent them from falling over.



Tailgate / drop sides closed

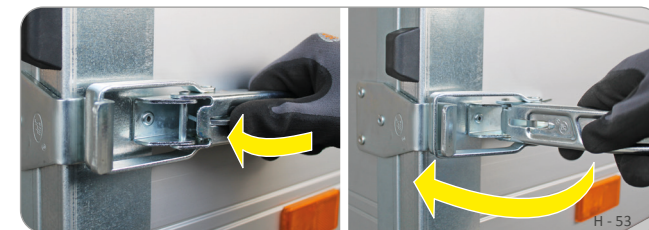
1. Tailgate, folding
2. Side wall hinge
3. Stanchion
4. Latch (locked)
5. Side wall extension (300 mm)



Drop side latch (locked)

1. Hook plate
2. Bracket
3. Securing device
4. Handle

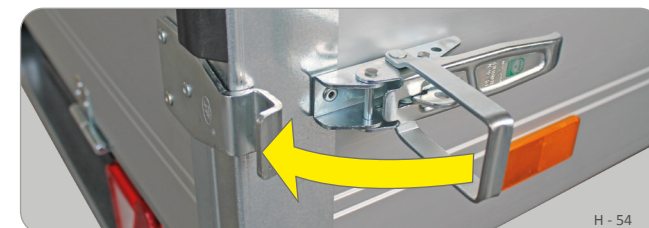
Unlocking the latch



Unlocking the latch

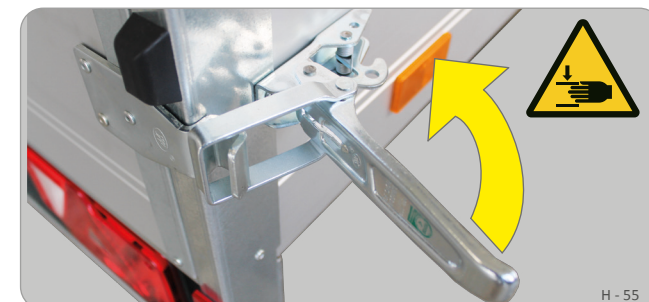
- ▶ Engage the latch (3).
- ▶ Pull the handle out (4).
- ▶ Release the bracket (2) from the hook plate (1).

Locking the latch



Closing the latch

- ▶ Place the bracket over the hook plate.

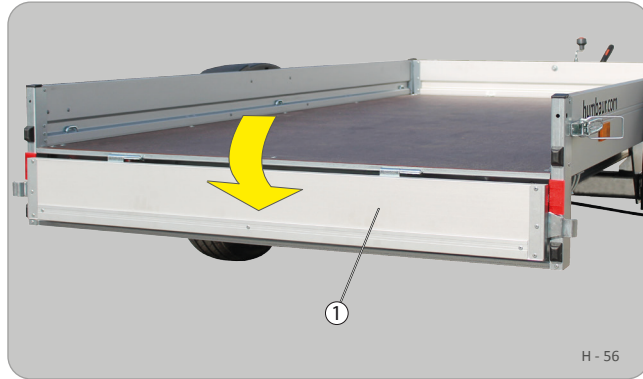


Locking the latch

- ▶ Push the handle closed with the flat of your hand. The lock latches into place. The drop side latch is locked.

Operating the tailgate

Opening the tailgate



Tailgate folded down

1. Tailgate

- ▶ Unlock the latches on both sides.
- ▶ Hold the tailgate (1) with one hand.
- ▶ Carefully fold down the tailgate.

Closing the tailgate



Folding the tailgate shut

- ▶ Fold up the tailgate - keep your hands away from the closing edges.
- ▶ Close the latches one by one.

Removing the tailgate

Sliding out the tailgate



Removing the tailgate

1. Hinge on the tailgate
2. Hinge on the chassis

- ▶ Unlock the latches on the tailgate.
- ▶ Fold the tailgate to a horizontal position.
- ▶ Slide the tailgate sideways in the direction that is now unobstructed.

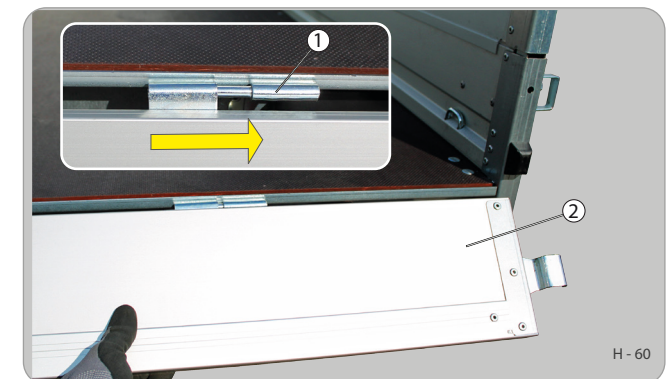


Tailgate removed

- ▶ Put the detached tailgate somewhere where it is safe from damage.
- ▶ Close the latches.

Fitting the tailgate

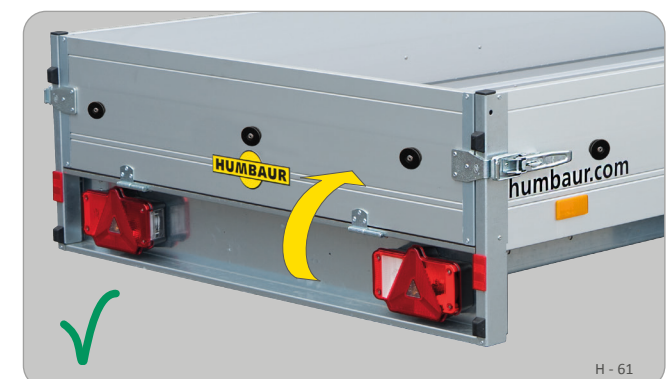
Inserting the tailgate



Fitting the tailgate

1. Hinge
2. Tailgate

- ▶ Slide the tailgate (2) sideways into the hinge (1).



Tailgate fitted and secured (driving position)

- ▶ Fold up the tailgate.
- ▶ Lock the latches on the tailgate.

8.2 Side wall extension

Functional explanation

- Increase cargo volume e.g.:
150 mm (1) + 300 mm (2) + 300 mm (3) =
750 mm x cargo bed (mm²) = cargo volume (mm³).
- Apply to base drop sides, secure with latches and screw connections.



The side wall extensions can also be retrofitted! Read and observe the assembly instructions.



WARNING

Driving without secured side wall extensions!

Unsecured side wall extensions / stanchions may be thrown off while driving - risk of accident!

- ▶ Screw the stanchion extensions into the stanchions of the base drop side.
- ▶ Close all latches on the base drop sides / side wall extensions before driving off.
- ▶ Check that the screw connections on all side wall extensions are tight before driving off.



Side wall extension secured

1. Screw connection
2. Stanchion



Example: Single side wall extension (STARTRAILER PLUS)

1. Base drop side (300 mm)
2. Side wall extension (300 mm)
3. Latch



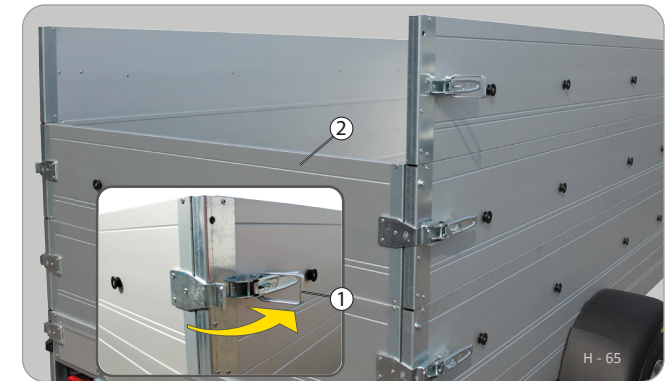
The side wall extensions are not designed to support the weight of goods - long materials must not be supported / positioned on the side wall extensions. The rear side wall extensions can be removed to transport long materials, for example. Remove the side wall extensions from top to bottom.



Example: Double side wall extension (Multi)

1. Base drop side (150 mm)
2. Side wall extension (300 mm)
3. Side wall extension (300 mm)

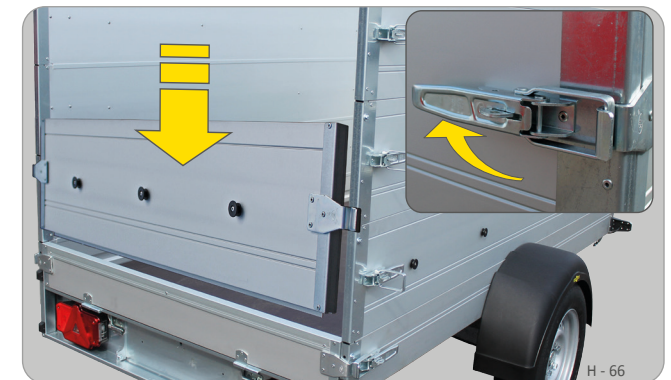
Removing / fitting drop sides



Removing the side wall extension

1. Latch, released
2. Side wall extension

- ▶ Unlock the latches (1) on both sides - hold the side wall extension (2) firmly with both hands.
- ▶ Lift out the side wall extension and put it somewhere where it is safe from damage.



Fitting the side wall extension

- ▶ Place the side wall extension on the tailgate.
- ▶ Lock the latches.

8.3 Aluminium cover on side wall extension

Functional explanation

- Transport protected from weather / theft etc.
- Right / left bracket latch, lockable
- Attachment to the side wall extensions
- Supported at front, raised at rear
- Aluminium cover is held open by two gas struts

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.

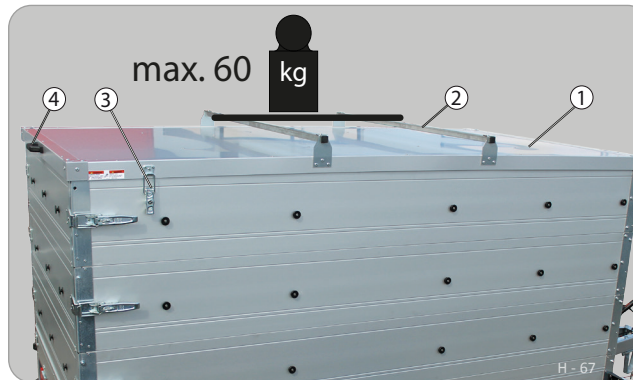
- ▶ Do not allow the cover to fall shut on its own.
- ▶ Use the handle to operate the cover - keep your hands / fingers away from the closing edge.
- ▶ Use the pull strap to close the cover and hold it firmly by the handle.



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 specialist workshop.

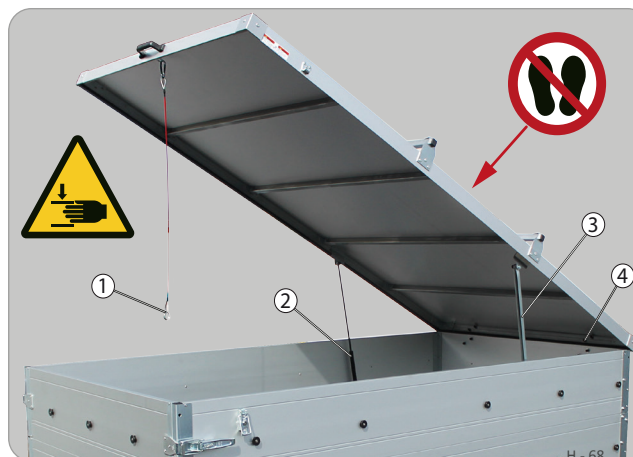


Aluminium cover on triple side wall extension (Multi)

1. Aluminium cover
2. Lateral crossbar
3. Latch
4. Handle



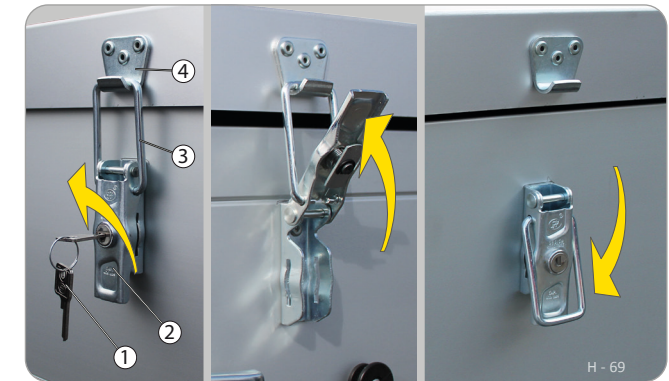
Do not stand on the aluminium cover!
Do not exceed the maximum load of 60 kg!



Aluminium cover unlocked / open

1. Pull strap
2. Gas strut
3. Piston retainer
4. Hinge

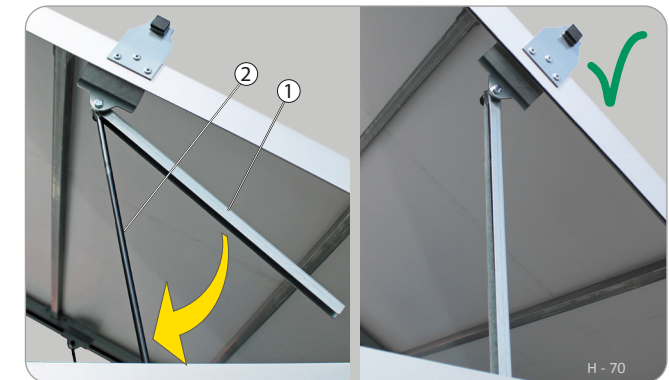
Opening the aluminium cover



Unlocking latches

1. Key
2. Lever
3. Bracket
4. Hook plate

- ▶ Unlock the latch using the key (1).
- ▶ Pull the lever (2) upwards.
- ▶ Release the bracket (3) from the hook plate (4).

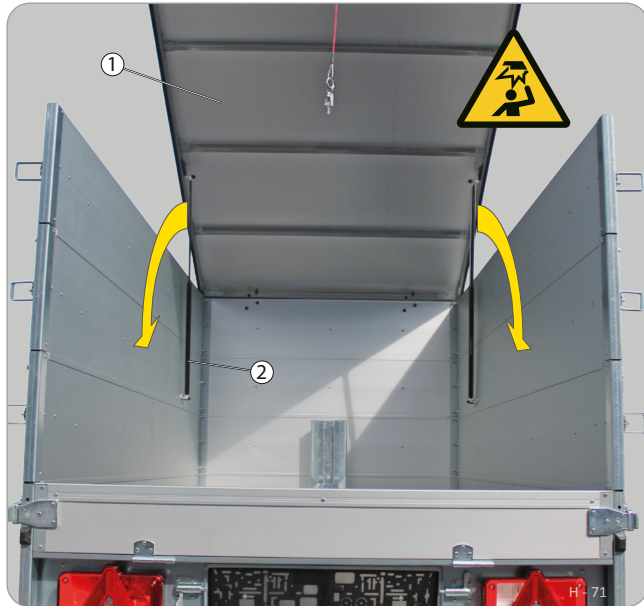


Gas strut secured

1. Piston retainer
2. Piston

- ▶ Swivel the piston retainer (1) on the piston (2)
The aluminium cover is secured against unintentional slamming.

Closing the aluminium cover



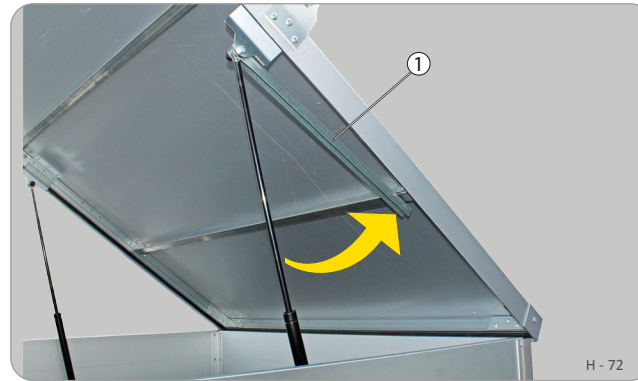
Aluminium cover open

1. Aluminium cover, open
2. Gas struts



The swivel range of the gas struts must not be adjusted during loading! Leave a sufficient distance to the gas struts to ensure they function properly.

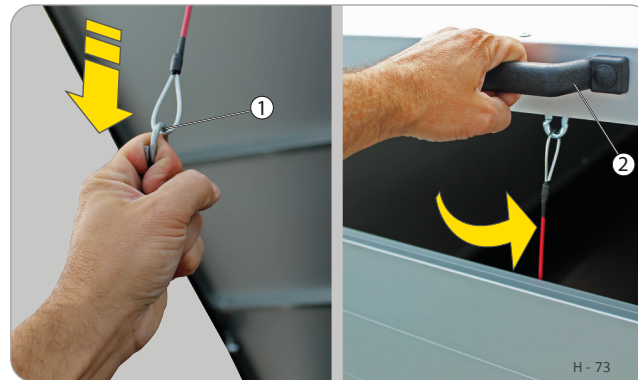
- ▶ Fit / close the tailgate and side wall extensions before folding the aluminium cover shut.



Gas strut released

1. Piston retainer

- ▶ Swivel down the piston retainer (1). The piston on the gas strut is released.

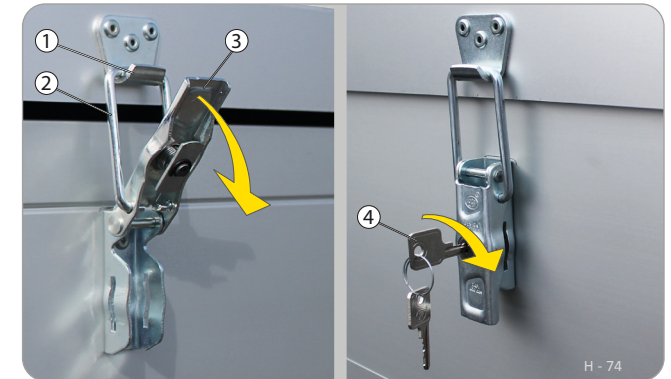


Closing the aluminium cover

1. Pull strap
2. Handle

- ▶ Pull down the aluminium cover by the pull strap (1). Do not allow the aluminium cover to fall shut by itself.
- ▶ Hold the aluminium cover firmly by the handle (2) and place the pull straps (1) inside the trailer.

Locking the aluminium cover



Secure the latches

1. Hook plate
2. Bracket
3. Lever
4. Key

- ▶ Push down the aluminium cover using one hand.
- ▶ Place the bracket (2) over the hook plate (1).
- ▶ Push down the lever (3).
- ▶ Lock the latch using the key (4).
- ▶ Lock the latch on the other side of the aluminium cover.



Aluminium cover closed / locked (driving position)

8.4 Bicycle stand on aluminium cover

Functional explanation

- Two pre-assembled crossbars (max. load 60 kg)
- Possible to mount 1 to 3 bicycle stands
- Safe transportation of bicycles

WARNING

Overloading the bicycle stand!

The bicycle stand could break and the bicycle could fall off - risk of accident!

- ▶ Observe the maximum load capacity - see label.



CAUTION

Opening the aluminium cover with a load on top!

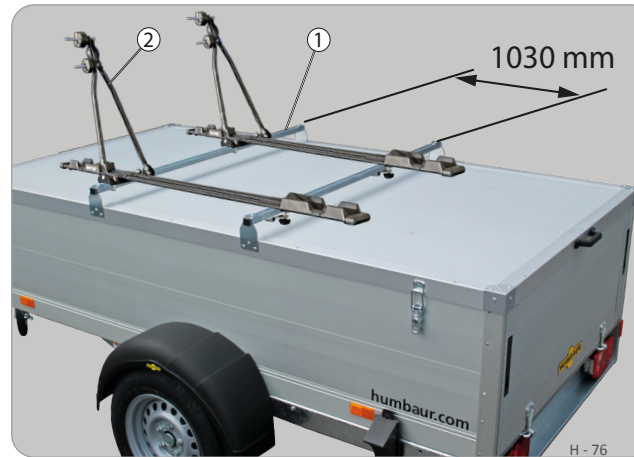
The gas struts cannot support an additional load - the aluminium cover may fall shut unexpectedly - risk of impact / crushing!

- ▶ Remove the load, e.g. bicycle, before opening the aluminium cover.
- ▶ Before opening the aluminium cover, make sure that there are no unsecured goods on top that can slide off.

NOTICE

Overloading of aluminium cover / crossbar!

- The aluminium cover may be deformed. Crossbars can break.
- ▶ Limit the weight on the crossbar to a maximum of 60 kg.
 - ▶ Distribute the load evenly across the crossbars.



Example: Mounted bicycle stand

1. Lateral crossbar
2. Bicycle stand / stand



Transporting a maximum of 3 bicycles only permitted using a bicycle carrier!

Other goods such as long materials cannot be transported on crossbars - no tie-down options available!



Observe / read assembly instructions provided by bicycle stand manufacturer.



Example: Bicycle mounted / secured

1. Bicycle
2. Belt
3. Adjustable support

- ▶ Adjust the adjustable support (3) to fit the size of the bicycle (1).
- ▶ Lift the bicycle onto the bicycle stand. If necessary, use steps or ladder.
- ▶ Secure the bicycle frame with the bracket support.
- ▶ Screw the rotary handles tight.
- ▶ Lock the rotary handle - as anti-theft device.
- ▶ Secure both tyres with a belt (2).

8.5 Loading ramps (Multi)

Functional explanation

- Possibility of loading 2-wheel or 4-wheel vehicles
- Lightweight aluminium loading ramps without edge
- Size: L=2000 mm x W=200 mm x D=50 mm
- Own weight: 9 kg / pair
- For driving on with vehicles fitted with air / rubber tyres or rubber crawler tracks



Pay attention to the safety information and operating instructions provided by the loading ramp manufacturer.



The load capacity of the loading ramps is not automatically identical to the maximum load capacity of the trailer!



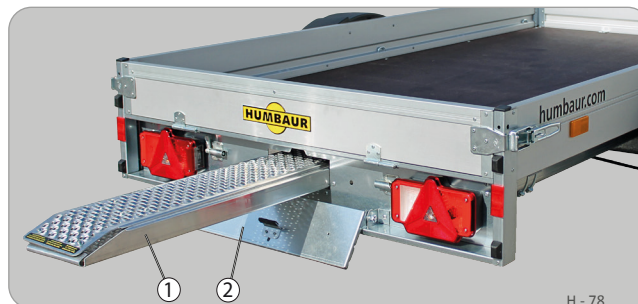
WARNING



Driving on the loading ramps

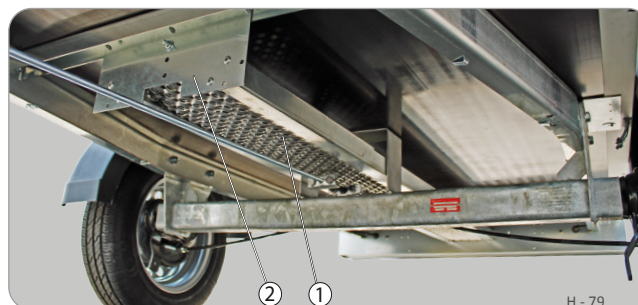
The loading ramps could be deformed and cause the trailer to become unstable. The loaded vehicle could fall / tip over / suddenly start moving and crush or hit people.

- ▶ Always couple the trailer to the vehicle and stabilize the rear end using supports.
- ▶ Do not drive over the loading ramps with a pallet loader or a mobile lifting platform - their small wheels exert a high point load.
- ▶ Do not drive over the loading ramps with track vehicles (steel tracks) and road rollers - they could destroy the material.
- ▶ Observe the minimum and maximum drive-up height.
- ▶ Before driving on the loading ramps, ensure that they are secured properly to prevent them from slipping off.
- ▶ If the driver does not have visual contact with the wheels: Enlist the help of a second person before driving on the loading ramps.
 - Supervision / instruction from a second person recommended.



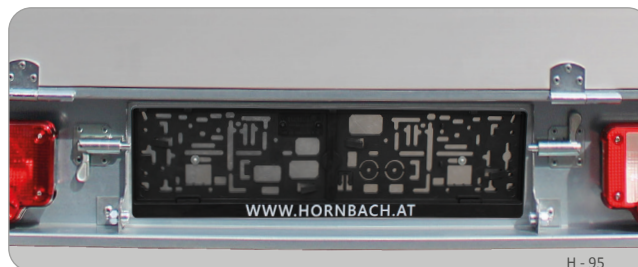
Multi with loading ramps

1. Loading ramps (stacked on top of one another)
2. Slot flap



Bottom view of trailer

1. Loading ramps, stowed
2. Holder

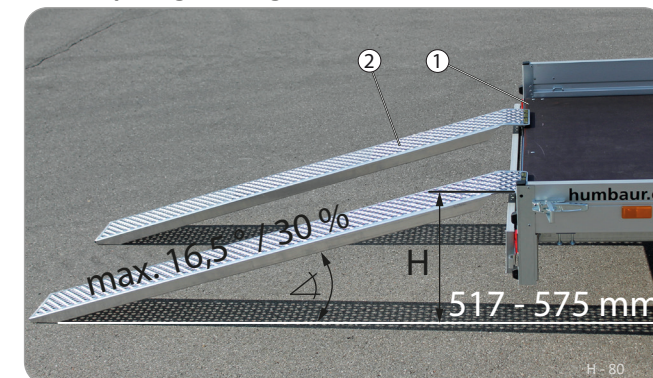


Slot flap closed (driving position)



The loading ramps must be transported in the slot under the chassis! Loose loading ramps must be secured to prevent them from tipping over or slipping.

Drive-up height / angle



Drive-up height

1. Cargo bed
2. Straight loading ramp (L=2000 mm, W=200 mm)

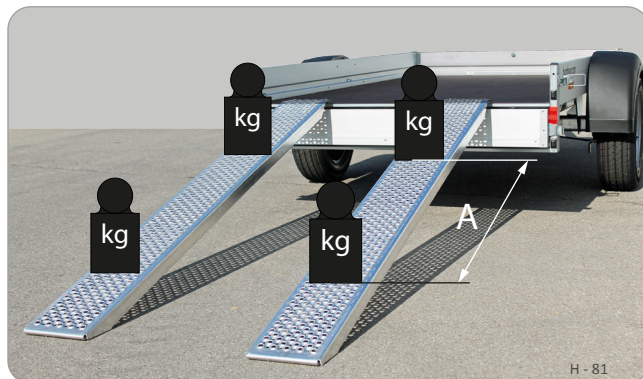


The width of the tyre print on the loaded vehicle must not exceed 180 mm!
Rail width 200 mm - 20 mm = max. 180 mm

Please note!

- Load and unload the vehicle slowly!
Drive onto the trailer at max. 0.3 m / sec.
Avoid driving at speed and braking as these generate vibrations and drastically increase the stresses on the trailer components.
- The drive-up height (H) must be 517-575 mm. It must not be more than the maximum value or less than the minimum value.
 - Risk of trailer breaking if height is below the minimum drive-up height
 - Risk of trailer tipping if height is above the maximum drive-up height
- The loading ramps may only be used on a solid, stable and level surface.
- The loading ramps must not be used as a bridge.

Bearing weight



Load capacity for 4-wheel vehicle

Axle spacing in mm (A)	Load in kg
0 - 499	260
500 - 750	320
751 - 1200	400
> 1200	400

Table: Load capacity

- The load distribution over the drive-up ramps should be two-thirds of the weight on one axle of the loaded vehicle and one-third of the weight on the other axle. Note the weight distribution of the loaded vehicle and position of the engine, fuel tank, equipment, etc.
- The load capacity of the loading ramps is based on a 4-wheel vehicle (two axles) and always designed for one pair / set of loading ramps. The manufacturer cannot provide any warranty for the separate use of individual ramps or several sets of ramps positioned next to one another.
- When driving 2-wheel vehicles up the loading ramps, the load capacity must be halved!
- Before using the loading ramps for 2-wheel vehicles, consult the manufacturer to check whether the ramps are suitable.

WARNING



Overloading the loading ramps

The loading ramps could be deformed and cause the trailer to become unstable. The loaded vehicle could fall / tip over / suddenly start moving and crush or hit people.

- Before loading, check whether the load capacity and design of the loading ramps are suitable. Make sure that the loaded vehicle does not exceed the maximum load capacity of the loading ramps - pay attention to the axle spacing.
- Refer to the table "Load capacity" for information on the max. loading capacity of the loading ramps.





CAUTION



Operating loading ramps

Your hands / fingers / feet may be crushed.



- Use  ,  .
- Hold the drive-up ramps with both hands.
- Manoeuvre the loading ramps carefully - avoid sudden movements.

Walking / driving on loading ramps



Walking / driving on the cargo bed

- Supports
- Loading ramps (1 pair)

WARNING



Loss of stability / risk of tipping over

If you walk / drive onto a trailer that is not supported at the rear, the trailer may become unstable and tip over.

- Support the rear of the trailer before walking / driving onto the trailer - retrofit supports, if necessary.
- Never walk onto an unstable trailer.


CAUTION



Walking on wet, icy or dirty loading ramps

Risk of slipping / falling over.



- Use  .
- Check the loading ramps are not slippery due to ice formation.
- If necessary, clean the loading ramps prior to use.

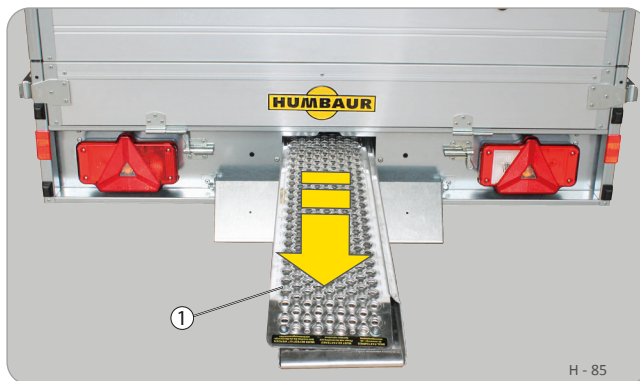
Removing the loading ramps



Releasing the loading ramps

1. Safety bolts (right / left)
2. Slot flap

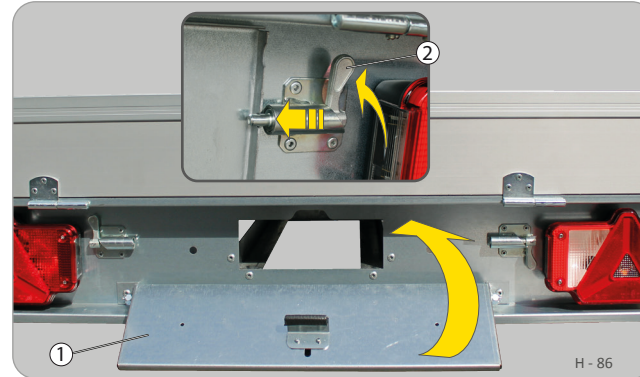
- ▶ Unlock the safety bolts (1) - swivel up tab.
- ▶ Swivel down the slot flap (2).



Removing the loading ramps

1. Pair of loading ramps

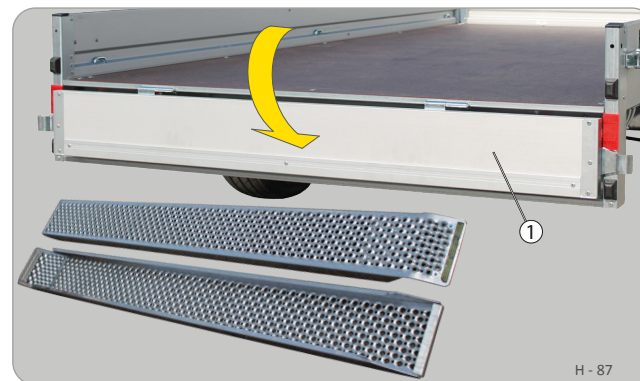
- ▶ Carefully pull the loading ramps (1) all the way out of the slot.
- ▶ Place the drive-up ramps safely on the ground – do not drop.



Closing the slot

1. Slot flap
2. Safety bolts, secured

- ▶ Lift up the slot flap (1).
- ▶ Lock the slot flap with the safety bolts (2) - swivel up tab.

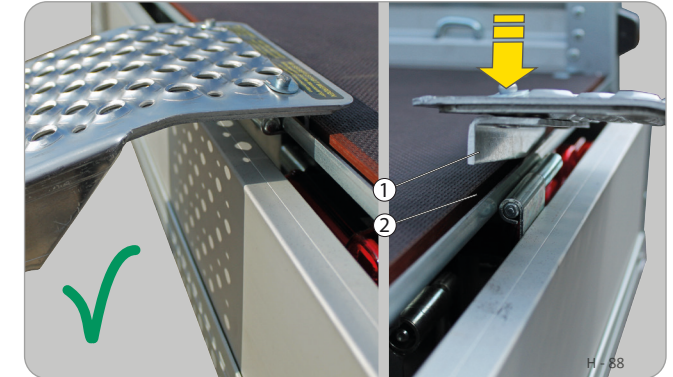


Opening the tailgate

1. Tailgate

- ▶ Release and open the tailgate (1).
- ▶ Check the loading ramps for deformation, distortion, cracks - do not use faulty loading ramps.

Position the loading ramps

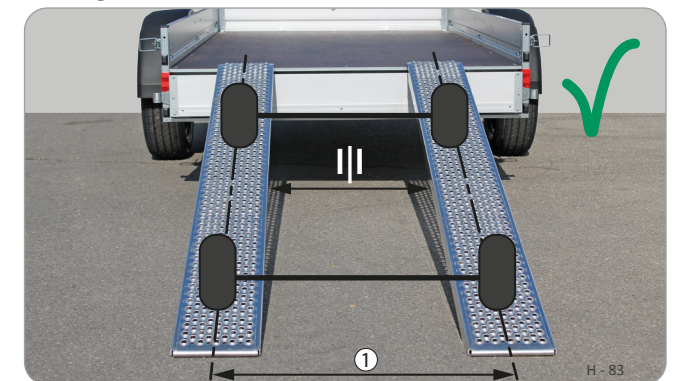


Loading ramps positioned

1. Securing bracket
2. Slit (between wooden plate and edge of metal plate)
 - ▶ Insert the safety retainer (1) on the loading ramps into the slit (2) between the wooden plate and edge of the metal plate.

The loading ramp is positioned securely.

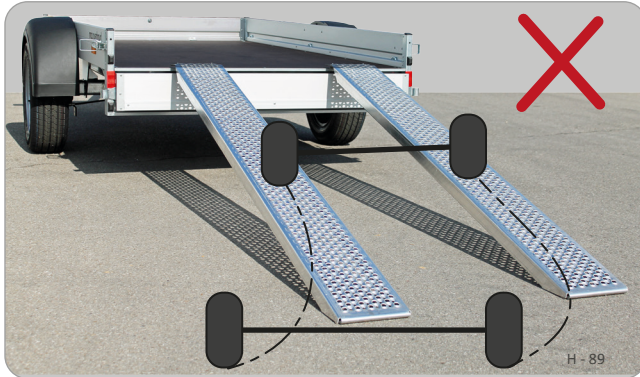
Setting the track width




Loading ramps positioned parallel

1. Track width of the loaded vehicle (4-wheel)
 - ▶ Position the loading ramps straight and parallel to one another according to the track width of the loaded vehicle.
 - ▶ Make sure that the wheels of the loaded vehicle are centered on the loading ramps.

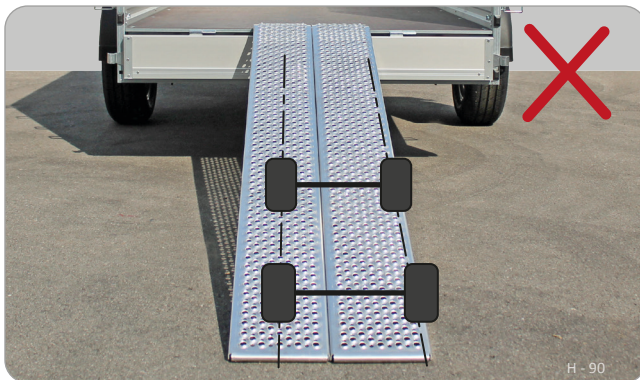
Driving on (4-wheel vehicle)



Negative example: Driving on from an angle

 Supports must be placed at the rear to stabilise the trailer before the vehicle is loaded or unloaded!

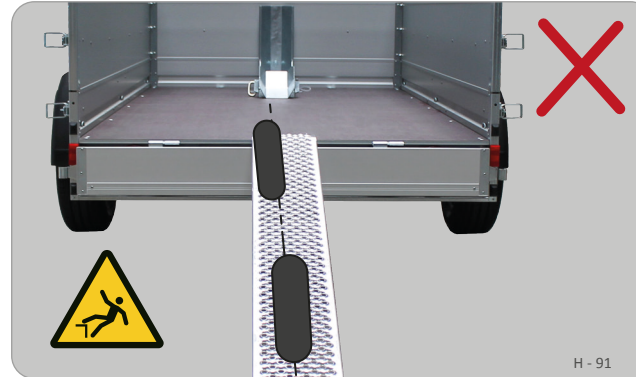
- ▶ Drive up the loading ramps in a straight line - not at an angle from the side.




Negative example: not driving up centrally

- ▶ Drive up the loading ramps centrally. All wheels on the loaded vehicle should be positioned centrally on both loading ramps.
- ▶ If necessary, adjust the position of the loading ramps to the required track width.

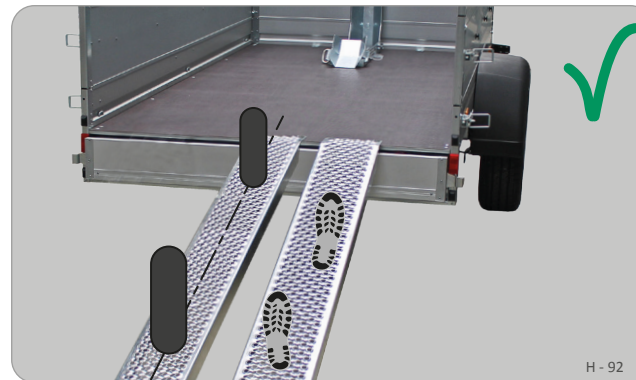
Driving on (2-wheel vehicle)




Negative example: Pushing on a motorcycle

 The loading ramps do not have an edge to guide the wheels - risk of slipping / falling over!

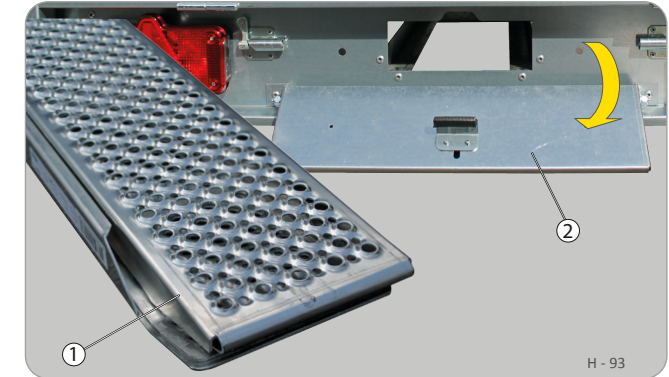
- ▶ Position the second loading ramp beside the first one. Adjust the distance between the ramps according to the size of the motorcycle!



Pushing on a motorcycle safely

- ▶ Guide the motorcycle safely up the ramp - walk up the adjacent rail in parallel.
-  Heavy motorcycles must be loaded with the help of a second person! Observe the maximum load-bearing capacity of the loading ramps.

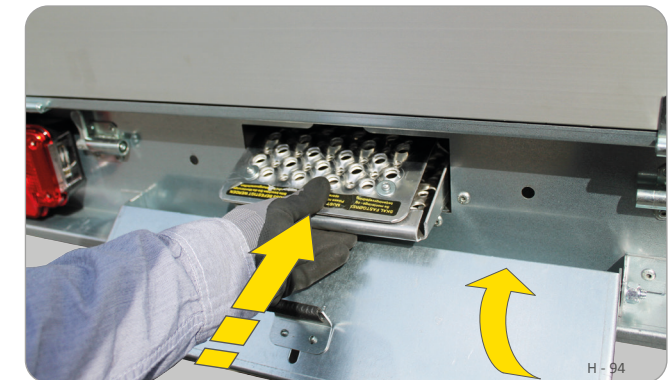
Stowing away the loading ramps



Loading ramps sandwiched together

1. Loading ramps, laid in one another
2. Slot flap, open

- ▶ Remove the loading ramps from the cargo bed.
- ▶ Close the tailgate.
- ▶ Place the loading ramps (1) in one another.
- ▶ Release and open the slot flap (2).



Stowing away the loading ramps

- ▶ Carefully slide the loading ramps all the way into the slot.
 - ▶ Close the slot flap and lock it with the safety bolts (right / left).
- The loading ramps have been stowed away and secured.

9 Driving with the towing vehicle and trailer



Driving with the towing vehicle and trailer

- ▶ Carry out a departure check.
- ▶ Check the points / components systematically.
- see section 6 "Commissioning"
- ▶ Pay attention to the general safety instructions.
- ▶ Before setting off, make sure that the generally permitted combined dimensions of the trailer and load are no more than 4 m high and 2.55 m wide (according to Section 22, paragraph 2 of StVO (German Road Traffic Act)).
- ▶ Before setting off and during breaks on the journey, make sure that the load is adequately secured.
- ▶ Before setting off, check that optional accessories such as side wall extension / tarpaulin / H-frame / supports, etc. are closed / secured.

Driving instructions

- The driving stability of the vehicle and trailer deteriorates as the driving speed increases - especially around bends.
 - ▶ 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 that occurs suddenly, e.g. on bridges, when overtaking, when changing terrain, can cause the car and trailer to start snaking.
 - ▶ Slowly reduce the speed.
 - ▶ Avoid hectic / jolting steering manoeuvres.

Braking style

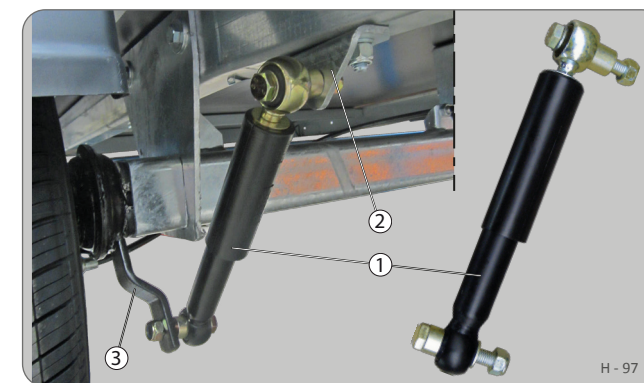
- The braking style for a car and trailer is different than that of a car without a trailer.
- The braking distance increases as the load increases.
- The ABS system on your car does not control the overrun device of a braked trailer.
 - ▶ If you do not have any experience in driving a car with a trailer - then carry out brake tests on a suitable site first.
 - ▶ Start braking early on.
 - ▶ Do a test brake before every journey.
 - ▶ For trailers with an overrun brake, initially brake gently, then brake harder - this will prevent the wheels from locking.

- The turning circle of long trailers is larger and the follow-up curve is smaller.
 - ▶ Pay attention to the required turning circle when manoeuvring a vehicle with a trailer attached.
 - ▶ Do not steer too sharply - to avoid a collision between the trailer and the car.

Reversing

- 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.
 - ▶  Keep people away from the back of the trailer. Make sure that you can always see the person in your wing mirror.

9.1 Driving at 100 km/h



Wheel shock absorbers fitted

1. Wheel shock absorbers (set)
2. Bracket on the chassis
3. Axle bracket

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.

Functional explanation

- Wheel shock absorbers absorb the bumps when driving your trailer. This increases the driving comfort and improves the road handling of your trailer.
- Wheel shock absorbers are required to license a trailer to travel at speeds of 100 km/h.
- Wheel shock absorbers you have installed yourself (for 100 km/h) need to be tested and approved by a type approval authority such as TÜV.



Wheel shock absorbers may only be retrofitted at the attachment points provided! Installation may only be carried out with original spare parts and by specialist personnel.

- ▶ Always drive at an appropriate speed.
- ▶ Do not drive faster than 100 km/h.

10 Cleaning / care

10.1 Need for 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).



WARNING

Dirty trailer components / surfaces!

Dirty trailer components such as the coupling head, overrun device, brake system, lighting system and attachments can prevent 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.

Important cleaning information!



Trailers contain substances which can pollute the environment, e.g. oil, grease, acid, brake dust. These can escape into the environment while cleaning.

- ▶ Only clean your trailer at a suitable wash station.
- ▶ Comply with local environmental regulations.



Before starting any cleaning, always check that the power supply is off.



Carelessness while cleaning and failure to observe the safety information can lead to personal injury.

- ▶ Always take note of the specific features for care of various materials
- see Section: Trailer materials.
- ▶ After cleaning the trailer, wash your hands thoroughly with water / hand cleaner.
- ▶ If necessary, use hand care products before / after cleaning.
- ▶ 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 using a high-pressure cleaner, for example.
- ▶ In the first months, if possible, only wash your new trailer with clean / cold water.
- ▶ Carefully remove any grease spots using pure petroleum ether (not petrol).
- ▶ Do not clean hydraulic hoses with petroleum ether, benzene, petrol or mineral oils.
- ▶ Take extra care when performing cleaning tasks with water / cleaning products and make sure fluids do not come into contact with delicate electronic components such as plugs, bulbs, etc.






CAUTION



Walking on the cargo bed while performing cleaning tasks!

When cleaning with liquid (water, cleaning products), there is the risk of slipping / falling over!

- ▶ Take particular care when stepping onto the cargo bed.
- ▶  Do not enter the trailer by climbing over the drop sides, drawbar or mudguards.
- ▶ Never step onto an unsecured trailer.
- ▶ Never step under a tipped and unsecured loading bridge / cargo bed.
- ▶ Use  ,  .

NOTICE

Using aggressive cleaning products

The surface coating / materials can be attacked or even destroyed by chemicals, salts, acids and bases.


- ▶ Do not use abrasive or aggressive cleaning products such as petrol, steel wool, wire brushes, sandpaper, etc. to clean the trailer.
- ▶ Only use mildly acidic or weakly alkaline cleaning products with a pH value of 6-10.
- ▶ Only use soft, clean fabric cloths or brushes.
- ▶ Use care products approved for the relevant material such as plastic cleaners or aluminium cleaners.

10.2 Cleaning with a high-pressure cleaner

NOTICE

Cleaning with a high-pressure cleaner!

Components and surfaces may become damaged or destroyed if they are blasted directly with water that is too hot, the jet pressure is too high or the jet is positioned too close.

- ▶  Read the operating instruction manual that accompanies the high-pressure cleaner.

- ▶ Use  ,  ,  .

- ▶ Keep the water jet moving in a circular motion – do not hold it in one position.
- ▶ Take extra care when cleaning with a high-pressure cleaner and follow the instructions.

of Participation

Distance from surface	min. 70 cm
Water pressure	max. 50 bar
Water temperature	max. 80 °C

- ▶ Do not direct the high pressure cleaner towards:
 - Parts of the electric system (lighting system, plugs, cables)
 - Tyres
 - Wheel shock absorbers
 - Coupling head
 - Signage (identification plate, stickers)
 - Hoses
 - Seals (sealed joints)



Do not clean a new trailer with a high-pressure cleaner within the first three months of use. The surfaces / materials are still sensitive and must be allowed to harden completely, while galvanised components must build up an oxide layer first.



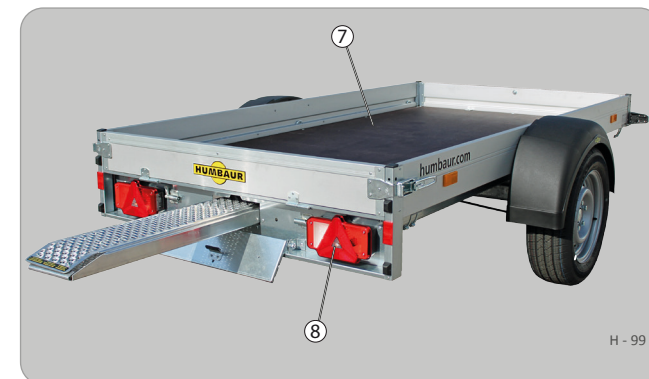
Oiled or lubricated components must be oiled, lubricated and greased again after intensive cleaning.

- Lubricant: Multi-purpose grease according to ISO-L-XCCHB3 or DIN 51825 type K (application range -30° to +120°).
 - Oil: commercially available universal machine oil
- ▶ Check that the lubrication / oiling points are greased / oiled sufficiently before and after cleaning work.
 - ▶ Lubricate / oil the relevant components / points listed in the maintenance section until the lubricant escapes.
 - ▶ Remove any excess oil / grease that escapes using a dry cloth.

10.3 Trailer materials



Material overview (front)



Material overview (rear)

1. Steel, galvanised
2. Plastic
3. Aluminium, anodised
4. Soft rubber (tyres)
5. Fabric tension cables (cords)
6. PVC / synthetic fabric
7. Multilayer wood
8. Rigid plastic

10.3.1 Aluminium

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.

Surface scratches are not a fault and do not lead to rust formation, as aluminium is resistant against corrosion.

Optical disadvantages are not a reason for a warranty claim.

- ▶ Clean the aluminium surfaces with water and neutral cleaning products.

10.3.2 Galvanised steel parts

Galvanised surfaces / components (e.g. chassis, drawbar) must first oxidise in order to develop corrosion protection. The protective rust layer only builds up after a few months.

Galvanised components are not resistant to certain chemical substances such as salts, acids (road salt, manure, etc.):

- ▶ Clean galvanised components with clear water after they have come into contact with aggressive substances.
- ▶ Allow the surfaces to dry out.

White rust may form on galvanised surfaces, which is promoted / caused by moisture / high humidity e.g. in road salt. White rust formation can be prevented or treated:

- ▶ 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.

10.3.3 Wooden components (multi-layer 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 waterlogging, 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.

Damaged 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.

- ▶ Immediately remove water, snow, ice, twigs, leaves, sand, grass etc. from the wooden surface before / after use and when parking the trailer.

Prevent puddles from forming on the wooden surface:

- ▶ Park the trailer on a slight incline leading towards the back end so that water can run off the cargo bed.
- ▶ Cover the trailer after drying 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 - this reduces the amount of water which can penetrate the wooden plate.

10.3.4 Fabric tension cables (cords)

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 dirty elastic cables with a wet cloth.
- ▶ Replace damaged, torn or significantly worn elastic cables.

10.3.5 PVC / synthetic fabric

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. Tarpaulins that are exposed to weather conditions for long periods of time could fade or develop spots over time.

- ▶ Clean the tarpaulin in wet weather (rain, fog) and at moderate 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 take effect.
- ▶ 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.
- ▶ Allow the surfaces to dry out.

10.3.6 Plastic / rigid plastic

Plastic components such as wheel chocks / mudguards are subject to an ageing process. The process is accelerated by effects of the weather e.g. UV irradiation / exposure to cold and heat.

The plastic hardens and becomes brittle / fragile.

Plastic components can break / tear.

- ▶ Clean plastic components with water.
- ▶ Apply a plastic cleaning product.
- ▶ Replace torn plastic components.

11 Repair / maintenance

11.1 Duty to repair

- Regular visual check / inspection of trailer and components 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 connections.
 - Repair of worn, faulty, safety-relevant components by qualified specialists in a specialist workshop.
- ▶ Before presenting the trailer for a technical inspection such as TÜV, have it inspected, maintained and repaired, if necessary, at a specialist workshop.

Intended use of the trailer includes:

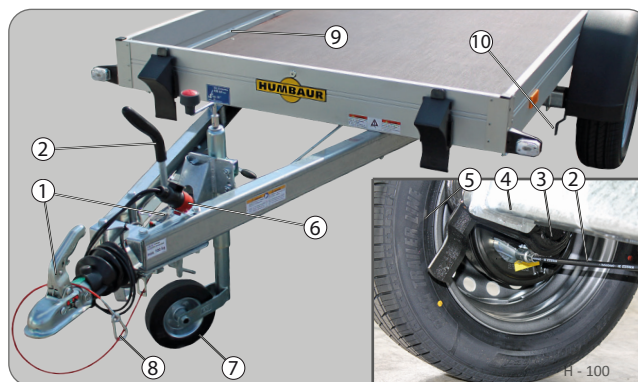
- Complying with the maintenance and repair work as specified by the manufacturer.
- Regular care / cleaning of the trailer to remove dirt / foreign bodies.
- Regularly presenting the trailer for technical examination / inspection.



Not complying with the maintenance instructions could invalidate or reduce the product liability or warranty from the manufacturer!

- ▶ Comply with all necessary maintenance and repair instructions defined as part of the intended use.
 - ▶ All completed inspections should be documented and verified with a stamp (section: Proof of inspection).
- Trailers that are regularly maintained have a higher resale value if the maintenance is documented.

11.2 Safety components



Safety components

1. Drawbar / overrun device / coupling head
2. Brake system / hand brake
3. Wheel bearing
4. Axle
5. Tyres/wheels
6. Electrical equipment
7. Jockey wheel
8. Arrester cable / safety cable
9. Tie-down points
10. Wheel shock absorbers (optional)



Safety components must be inspected at regular intervals by qualified personnel in a specialist workshop. Maintenance of the safety components depends on the degree of wear (intensity of use) on the trailer.

- ▶ We recommend performing an inspection every 6 months (but at least once a year).
- ▶ See list for details of safety components on the trailer.
- ▶ Maintenance work on safety components must always be performed by qualified personnel - see table: Maintenance activities for qualified personnel (specialist workshop).
- ▶ In the event of a repair, always use approved original spare parts supplied by the manufacturer.

11.3 Torques of screw connections

- ▶ Check / tighten the fastening screws / nuts with the following tightening torques.



Use a calibrated torque wrench to tighten screw connections.

- ▶ Set the torque wrench to the relevant maximum tightening torque value.

Thread (metric)	Strength class		Thread (metric)	Strength class	
	8.8	10.9		8.8	10.9
	Tightening torque (Nm)			Tightening torque (Nm)	
M 5	5.5	8.1	M 20	425	610
M 6	9.6	14	M 20x 1.5	475	980
M 8	23	34	M 22	580	820
M 8x1	25	37	M 22x1.5	630	900
M 10	46	67	M 24	730	1050
M 10x1.25	49	71	M 24x2	800	1150
M 12	79	115	M 27	1100	1550
M 12x1.5	83	120	M 27x2	1150	1650
M 14	125	185	M 30	1400	2000
M 14x1.5	135	200	M 30x2	1500	2150
M 16	195	290	M 36	2450	3500
M 16x1.5	210	310	M 36x2	2650	3780
M 18	300	430	M 42	3930	5600

Table: Tightening torques



Only use self-locking nuts once because the clamping effect of the plastic ring is reduced if you use it again.

- ▶ Replace self-locking nuts after unscrewing the screw connection.

11.4 Maintenance regime

Your maintenance tasks include regular checks of individual components, followed by taking appropriate action.

The following details refer to average trailer use with a maximum use of 10,000 km driven per annum.

- ▶ Adapt the intervals to your level of use, if necessary.

Maintenance work for users / operators					
Components	after the first 50 km	500 km or 1x per month	2,000 km or every 3 months	5,000 km or every 6 months	Maintenance work
Tyre pressure	x		x		▶ Measure the tyre pressure. Inflate tyre to recommended pressure.
Wheel nuts / bolts	x	x			▶ Check that all wheel nuts / bolts are tight, and tighten if necessary.
Tyre wear, wheels				x	▶ Check the ageing condition of the tyres (e.g. cracks, porous spots). Measure the tread depth in the middle of the tyres. ▶ Inspect the rims for visible damage (concentricity, wobble) and replace or repair the wheels as axle sets or in pairs.
Coupling head, overrun device				x	▶ Perform a visual inspection for damage. Check the wear condition / function. ▶ Check support bracket is fitted / undamaged. Check arrester cable / safety cable is fitted and undamaged. ▶ Lubricate / oil bearing points on the brake transmission. Lubricate / grease overrun device. ▶ If necessary, fix or replace faulty / loose gaiter. ▶ Clean pull rod on brake linkage and lightly grease (if required).
Brake system			x		▶ Check that the overall brake system functions correctly - perform a brake test. Check the function of the hand brake.
Jockey wheel				x	▶ Check function and stability. Lubricate moving parts.
Lighting system, retro-reflectors, signs			x		▶ Visually inspect for damage and check whether fitted (plugs, cables, rear lights, all retro-reflectors, registration plate / registration plate lighting). ▶ Check that the lighting system functions correctly. Replace faulty bulbs. ▶ Replace illegible signs (e.g. warning labels), if necessary.
General lubrication tasks				x	▶ Lubricate / oil coupling head. ▶ Lubricate / grease overrun device. Lubricate brake linkage, if necessary. ▶ Lubricate jockey wheel / support legs. ▶ If necessary, lubricate hinges on drop sides and attachments.
Mounting bolts				x	▶ Check tightness of all mounting bolts (refer to torque settings table). Pay particular attention to the screw connections on the chassis. ▶ Immediately tighten any loose bolts. ▶ Replace any worn / rusty screw connections. Replace loose rivet joints with screw connections, where possible.
Tie-down points, tie-down materials				x	▶ Check tie-down points (eyes, rings, brackets) for damage / check they are fitted.
Cargo bed / loading bridge				x	▶ Inspect the surface for damage / rust / oxidation. ▶ Thorough cleaning and care of the cargo bed (where required). ▶ Treat the wooden floor with linseed oil / turpentine / wood stain (as required).
Attachments (e.g. drop sides, aluminium cover)				x	▶ Check for damage, cracks, deformation of the attachments. ▶ Replace or repair defective or damaged parts. ▶ Check latches / hinges and grease if required. ▶ Check fixed superstructures for tightness and function.



Do not take any safety risks!



If maintenance work is performed on safety components by a layperson, the warranty is voided.

Any property damage or personal injuries resulting from inadequate / incorrect maintenance performed by laypersons / users absolve the manufacturer of any liability claims made by users / operators.

- ▶ Have the following maintenance tasks performed by a specialist workshop.

Maintenance activities for qualified personnel (specialist workshop)		
Components	10,000 km or every 6 months	Maintenance work
Tyres, Wheels	x	<ul style="list-style-type: none"> ▶ Replace old / disintegrating tyres. ▶ Rims that wobble / are unbalanced must be balanced or replaced. Replace damaged rims. ▶ Replace damaged / corroded wheel nuts / bolts.
Wheel bearings	x	<ul style="list-style-type: none"> ▶ Check wheel bearings, adjust if necessary. Repair worn wheel bearings. ▶ Check seals for damage / ageing and replace, if necessary. Check quantity of grease in wheel bearing housing, top up / replace, if necessary.
Axle	x	<ul style="list-style-type: none"> ▶ Inspect the suspension (load test). ▶ Check the screw connections between the axle and the chassis frame using a torque wrench. ▶ Check that the degree setting of the left and right rocker arms is the same. ▶ Repair surface damage: Remove rust, touch up rust protection paint and / or paint application.
Coupling head, overrun device	x	<ul style="list-style-type: none"> ▶ Check function and play, adjust if necessary. ▶ Replace the coupling head if severely worn. ▶ Clean and grease the overrun device / coupling head. Lubricate / oil bearing points.
Brake system	x	<ul style="list-style-type: none"> ▶ Check that braking effect / braking torque is even on a brake test stand. Check that brake mechanics are working correctly (response threshold). ▶ If necessary, lubricate or oil sliding points on coupling head, overrun device and brake system. ▶ Check the wear condition of the brake pads, change brake pads if necessary, readjust the brake system. Check that hand brake is working, replace spring mechanism, if necessary.
Jockey wheel	x	<ul style="list-style-type: none"> ▶ Replace a faulty / worn jockey wheel. Tighten or replace loose / faulty fasteners on support devices.
Lighting system, Retro-reflector	x	<ul style="list-style-type: none"> ▶ Check plugs, cables for damage and make sure they work, replace if necessary. ▶ If necessary, replace faulty rear light bodies and / or retro-reflectors. ▶ Check that the whole lighting system functions correctly. Replace faulty bulbs.
Mounting bolts	x	<ul style="list-style-type: none"> ▶ Replace any worn / rusty screw connections. ▶ Check whether the screw connections are tight using a torque wrench. Replace loose rivet joints, or substitute with screw connections, wherever possible.
Wheel shock absorbers	x	<ul style="list-style-type: none"> ▶ Replace leaking / smearing wheel shock absorbers (in pairs). ▶ Replace faulty shock absorbers with original spare parts.
Cargo bed / loading bridge	x	<ul style="list-style-type: none"> ▶ Repair damage to cargo bed or floor plate, replace the floor plate, if necessary.
Attachments (e.g. drop sides, aluminium cover)	x	<ul style="list-style-type: none"> ▶ Check that rivet connections are tight, replace if necessary. ▶ Replace corroded / loose screw connections. ▶ Repair faulty / deformed components, replace if necessary. ▶ Repair surface damage: Remove rust, touch up rust protection paint and / or paint application.

11.5 Lubricant / oil

- ▶ To lubricate / grease the trailer components, only use the listed lubricants.
- Type of lubricant:
Multi-purpose grease according to ISO-L-XCCHB3 or DIN 51825 type K with application range: -30 °C to + 120 °C.
- Oil: commercially available machine oil.
- ▶  If necessary, use hand care products or gloves to protect the hands / skin.
- ▶  After lubricating trailer components, wash your hands thoroughly with water / hand cleaner.
- The lubrication intervals must be adapted according to the intensity of use and degree of contamination.
- ▶ Wipe off any excess oil with a rag after performing lubrication work – environmental protection.

WARNING

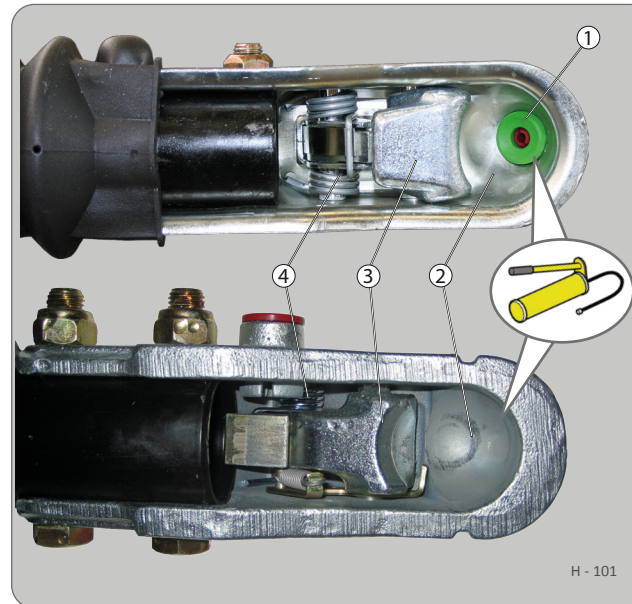
System failure due to incorrect lubrication

There are some components 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.

11.6 Coupling head

Cleaning



Coupling head (viewed from below)

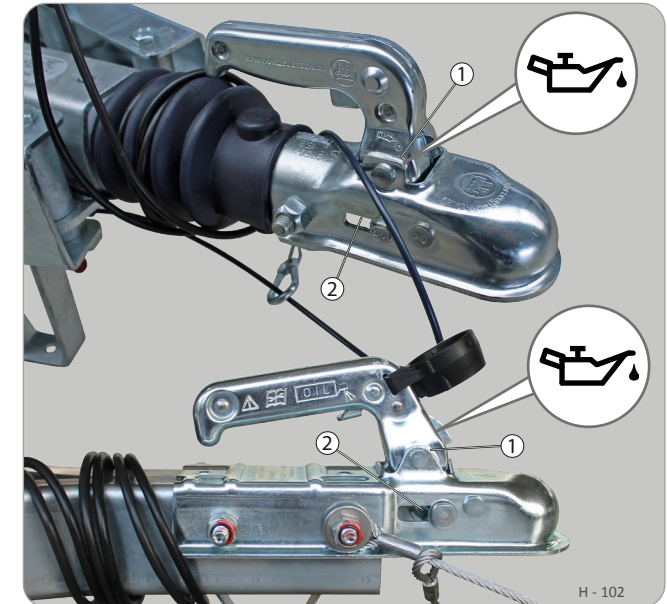
1. Safety indicator / mechanics
2. Spherical cup
3. Coupling cup
4. Spring mechanism



Foreign objects can prevent the coupling head from engaging!

- ▶ Clean the coupling head on the inside as well.
- ▶ Wipe the spherical cup / coupling cup with a cloth.
- ▶ Remove foreign objects such as blades of grass, leaves or small twigs.
- ▶ Check the spherical cup and the coupling cup for wear.
- ▶ Replace the coupling head if severely worn.

Lubricating / oiling



Coupling head

Lubrication / oiling points

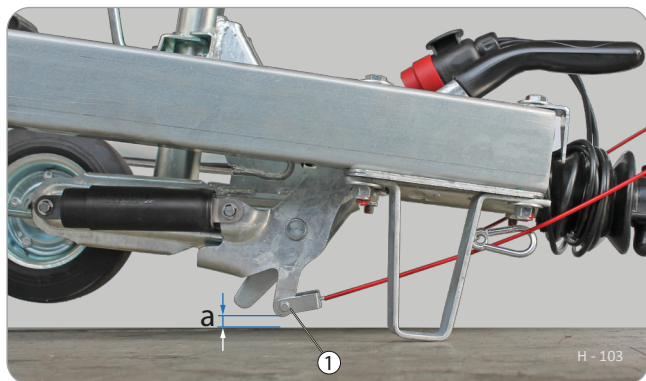
1. Oiling points (bearing points)
2. Lubrication points (spherical cup)



Spherical cup, joints and coupling cup bearing points must be lubricated / oiled regularly.

- ▶ Apply multi-purpose grease to the spherical cup / coupling cup from below.
- ▶ Drip some standard machine oil onto the bearings and joint areas.

11.7 Overrun device / brake system



Safety distance to the ground (a)

1. Deflection device



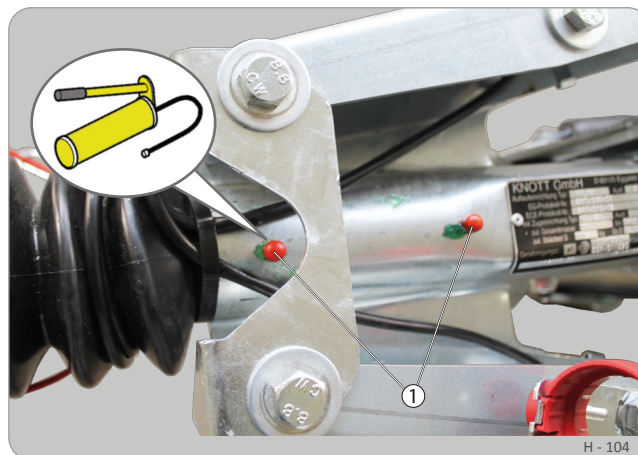
The overrun device is part of the brake system. A qualified expert must inspect the brake system in a specialist workshop after 1500 km or 6 months regardless of the prescribed maintenance intervals.



The lowest deflection device on the hand brake lever must not touch the ground - risk of deformation and malfunction of the brake system!

- ▶ When lowering the drawbar, make sure you leave enough space between the ground and the deflection device.
- Fit a drawbar support or jockey wheel to ensure the space is maintained.

Overrun device



Overrun device - lubrication points

1. Grease nipples (covering cap)

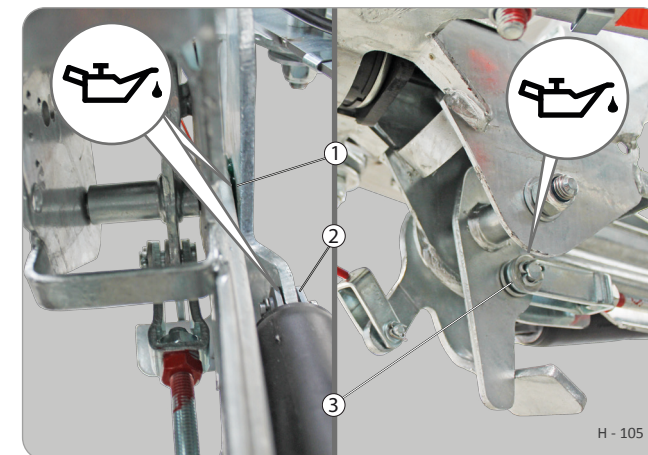
NOTICE

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.
- ▶ Remove the covering caps from the grease nipples.
- ▶ Lubricate the overrun device via the 2 grease nipples using a grease gun.
- ▶ Put the covering caps back on.

Brake system

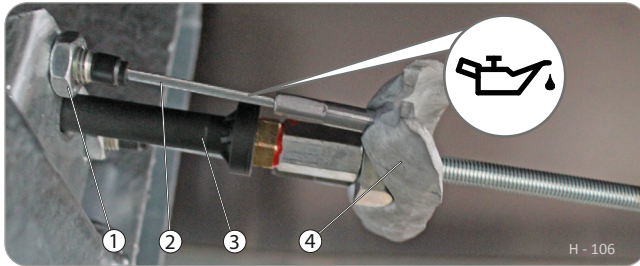


Deflection device on brake system

1. Deflection device / hand brake lever bearing point
2. Spring mechanism bearing point
3. Brake linkage bearing point

- ▶ Remove all of the old grease from the bearing points.
- ▶ Remove any foreign objects such as blades of grass, leaves or small twigs.
- ▶ Clean the bearing points / spring mechanism with a cloth.
- ▶ If necessary, lubricate the bearing points on the brake linkage (3), the deflection device (1) and the spring mechanism (2).

Lubricating the tandem compensator



Brake system tandem compensator (under chassis)


1. Lock nut
2. Bowden cable
3. Brake linkage holder
4. Brake system tandem compensator

WARNING



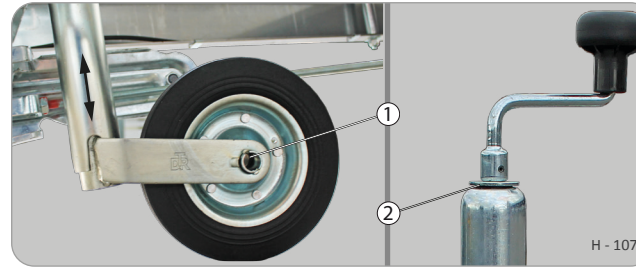
Elevated cargo bed! Jacked trailer!

The cargo bed / trailer may fall unexpectedly. You may be crushed between the chassis and ground.

- ▶ Never step underneath an unsecured trailer.
- ▶ Secure the raised cargo bed / trailer using suitable equipment e.g. trestles.
- ▶ Secure the trailer against rolling away.
- ▶  Keep persons away from the danger zone.

- ▶ Remove all of the old grease from the bearing points / unprotected Bowden cable.
- ▶ Remove any foreign objects such as blades of grass, leaves or small twigs.
- ▶ Lubricate the unprotected sections of the Bowden cable and the bearing points, if necessary.
- ▶ Actuate the hand brake lever several times.
- ▶ If necessary, readjust the tandem compensator.

11.8 Jockey wheel



Cleaning the jockey wheel




1. Wheel bearing point
2. Lubrication / oiling points

CAUTION



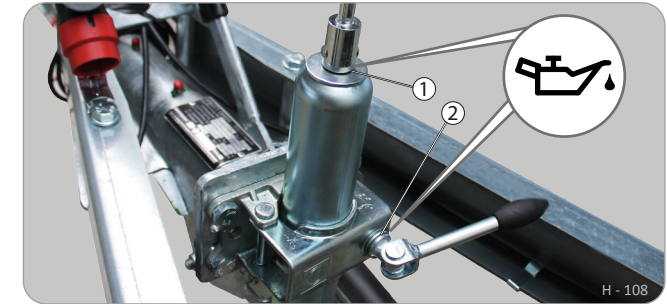
Releasing the jockey wheel!

Risk of crushing your hands / fingers / feet when cleaning / maintaining the jockey wheel. The trailer may tip downwards when the clamp fastening is released.

- ▶ Couple the trailer to your car before cleaning / performing maintenance.
- ▶  Do not place your feet under the drawbar during cleaning / maintenance.
- ▶ Only release the clamp fastening if the trailer has been coupled / secured.
- ▶ Use  ,  .

- ▶ Clean the lubrication / oiling points with a cloth.
- ▶ Remove any possible contamination.
- ▶ Check the jockey wheel for wear / deformation.
- ▶ Replace the jockey wheel if there are signs of severe wear / deformation, significant amounts of rust have formed or the rubber on the wheel is cracked.

Lubricating / oiling

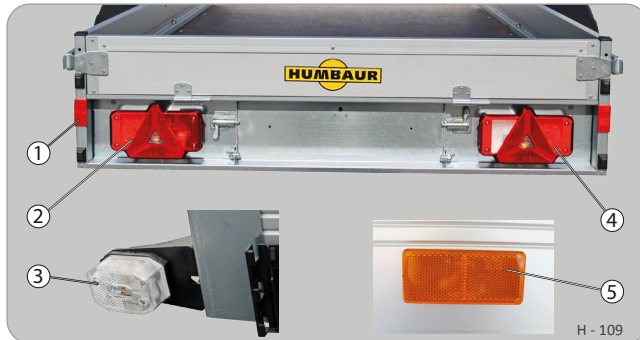


Jockey wheel - lubrication points

1. Oil gap
2. Thread, clamp-fastening bolt (T-handle)

- ▶ Lubricate the thread of the clamp-fastening bolt.
- ▶ Drip some standard machine oil into the oil gap on the jockey wheel.
- ▶ Crank the jockey wheel up and down several times.
- ▶ Secure the jockey wheel with the clamp - tighten the T-handle.

11.9 Lighting system






Lights / markings on the trailer

1. Rear retro-reflector (red)
2. Multifunctional light, left version for: Brake, indicator, rear fog, number plate light
3. Front retro-reflector or light (white)
4. Multifunctional light, right version for: Brake, indicator, number plate light and reversing light
5. Side retro-reflector (orange)

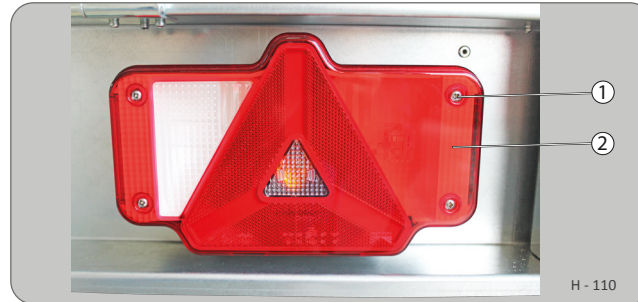
NOTICE

Incorrect maintenance of the lighting system!

The bulbs / lights may stop functioning as a result of incorrect maintenance.

- ▶  Do not touch bulbs with your bare fingers. Use a cloth or the bulb packaging - this increases the life expectancy of the bulb considerably.
- ▶  Switch the lighting off prior to carrying out work on electric systems.
- ▶  Perform work on the electric system only in areas protected from the environment - protection against wetness.
- ▶ Always use original spare parts (bulbs) on the lighting system. Only replace bulbs with those of the same wattage and the same type.

Check lighting

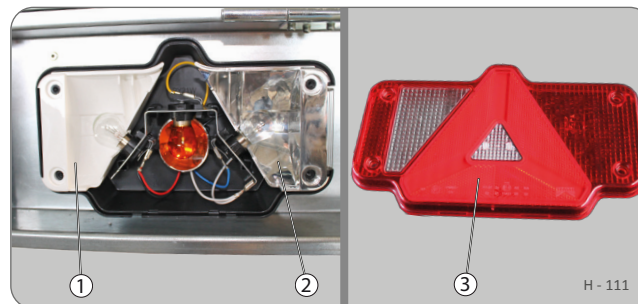


Multifunctional light (at rear)

1. Mounting bolts (4x)
2. Lens

- ▶ Check that the lights are fitted, check for damage and make sure they work.
- ▶ Replace faulty lamps / retro-reflectors.
- ▶ Have non-functional lamps, torn / brittle electric cables replaced by a specialist workshop.

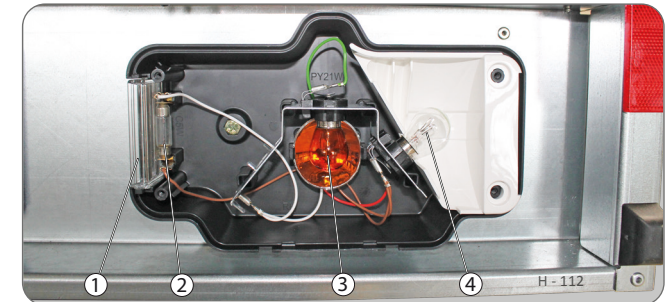
Exchanging lights



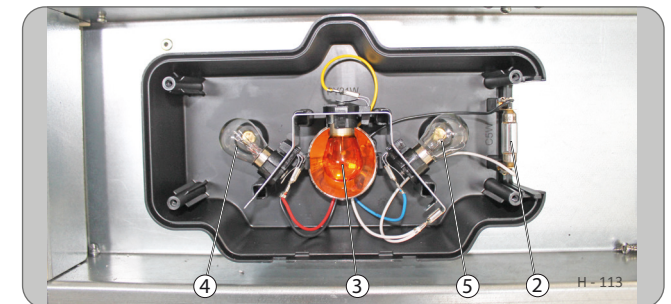
Multifunctional light, left

1. Plastic insert, white
2. Plastic insert, silver
3. Lens

- ▶ Unscrew the fastening screws.
- ▶ Carefully remove the lens.



Multifunctional light, right

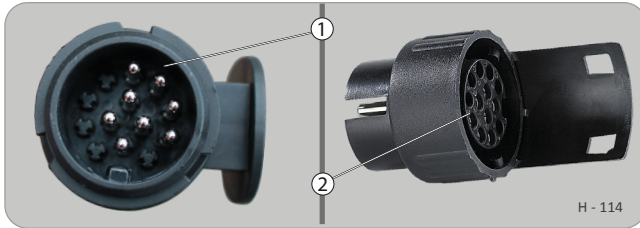


Multifunctional light, left (without plastic inserts)

1. Slot-in cover (plastic)
2. Number plate tubular bulb (C5W)
3. Brake / tail light assembly (PY21W)
4. Indicator (PY21W)
5. Rear fog light (PY21W)

- ▶ Remove the plastic inserts.
- ▶ Clean the contacts, if necessary. If necessary, remove any dirt / water from the housing.
- ▶ Unscrew faulty bulb from the socket.
- ▶ Insert the plastic inserts.
- ▶ Insert the new bulb into the socket. Ensure that the bulb is seated securely.
- ▶ Place the lens tightly onto the housing.
- ▶ Insert the fastening screws. Do not tighten the fastening screws too much. - Risk of lens popping out!

11.9.1 13-pin plug, 12 V



13-pin plug (8 pins assigned)

Adapter 13 to 7-pin

1. Plug
2. Adapter

Functional explanation

- 12V light fitted with 13-pin plug as standard (8 pins assigned).
- Your towing vehicle may be fitted with a 7-pin or a 13-pin socket.
- To make the electric system of your towing vehicle compatible with the trailer, you can use an adapter if required.



Pay attention to the respective installation instructions for the adapter plug.



The plug is pre-assembled according to standard DIN ISO 1724. Making independent modifications to the contact assignment may impair the function of the lighting system.

- ▶ Have qualified specialist personnel check any retrospective modifications made to the plug connection on your trailer.



It can only be warranted that the lighting system will work perfectly if the contacts are clean / not deformed and not worn.



WARNING

Damaged / torn cable!

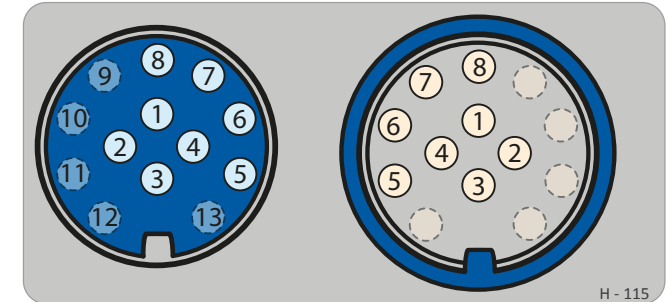
Damaged, torn, worn or porous cable can impair the function or even cause the lighting system to fail, posing an indirect risk of accident during operation.

- ▶ Before setting off and when parking, 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 wind 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.
- ▶ Do not tow the trailer if the cables are torn or porous. Have a specialist workshop repair or completely replace them immediately.
- ▶ Never try to repair damaged cable yourself.
- ▶ If necessary, replace missing cable clips / ties.
- ▶ Maintain the electric cabling as required with a damp cloth and silicone spray.



If you have any problems with the electric system, contact your car dealer or a specialist workshop before working on the electrical system. Humbaur GmbH will not accept any liability or costs for consequential damage to the electric system on the towing vehicle and / or the trailer caused by incorrect configuration or reconfiguration of the contacts on the plug.

Contact configuration



Socket (on car)

Plug (on trailer)

Contact assignment (8 pins assigned)

No.	Description	Name	Colour	Cross-section
1	Indicator left	L	Yellow	1.5 mm ²
2	Rear fog light	54g	Blue	1.5 mm ²
3	Ground for contact 1-8	31	White	2.5 mm ²
4	Indicator right	R	Green	1.5 mm ²
5	Right light	58R	Brown	1.5 mm ²
6	Brake lights	54	red	1.5 mm ²
7	Left light	58L	Black	1.5 mm ²
8	Reversing light	1	Grey / pink	1.5 mm ²



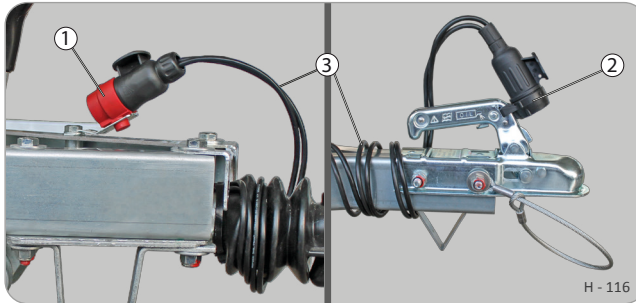
WARNING

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 of the plug connections, using contact spray if necessary.
- ▶ Clean dirty plug connections.
- ▶ Have any faulty, torn or worn plug connections replaced by a specialist workshop.
- ▶ 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.

Parking the plug / winding the cable




Cable / plug parked correctly

1. Parking socket (braked trailer)
2. Parking socket (unbraked trailer)
3. Cable


- ▶ Carefully wind the cable (3) around the drawbar - make sure you do not pull on the cable while doing so.
- ▶ Insert the plug (1, 2) securely into the parking socket.



Cable plug stowed incorrectly

- ▶  The cable/ plug must not lay on the ground / floor.

12 Parking

- ▶  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.

- ▶ Where possible, park a trailer in a closed area or an area with a roof.
 - The ground should be level, dry and solid.
- ▶ 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.
- ▶ When parking in a public area, make sure that the lights, retro-reflectors and number plate are not covered.
- ▶ On single-axle trailers, both wheels of an axle must be supported in only one direction in order to prevent the trailer from rolling away on one side.
- ▶ Uncoupling a single-axle trailer with a load (without additional supports) is not permitted - risk of tipping up!

NOTICE

Trailer parked for extended periods!



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

- ▶ Release the hand brake.
- ▶ Put wheel chocks in place.
- ▶ If possible, move the trailer after a short period of time.

12.1 Manoeuvring



Manual manoeuvring of the trailer

- ▶ Use  .
- ▶ Wind down the jockey wheel, if available.
- ▶ Lock the body, if necessary.
- ▶ Release the hand brake, if available.
- ▶ Pull/push the trailer in the desired direction.
- ▶ Ensure that your feet do not get under the jockey wheel / drawbar / coupling head.
- ▶ Park the trailer wherever possible on level ground / an even surface – not on a slope or on an uphill or downhill incline.
- ▶ Apply the hand brake - if available.

CAUTION

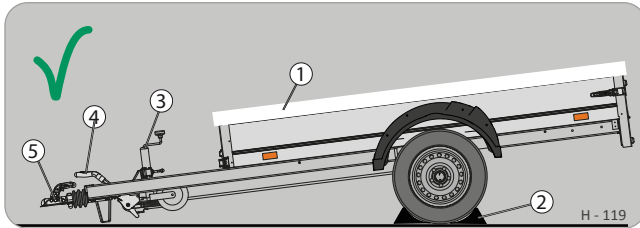


Manoeuvring with a loaded trailer!

The max. load of the jockey wheel is exceeded. The jockey wheel could break off and the trailer could tip over. The trailer could top over if the load slips.

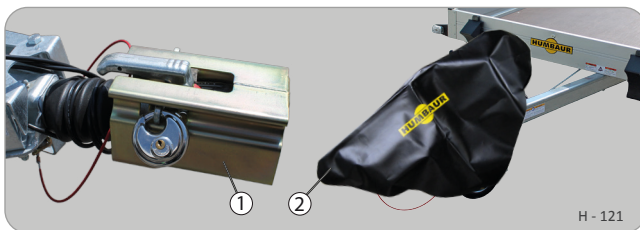
- ▶ Only manoeuvre the trailer when it is empty.
- ▶ Do not drive over any obstacles, such as stones, curbs, etc.

12.2 Long-term parking



Trailer parked safely

1. Cover attached (prevents trailer from becoming waterlogged)
 2. Wheel chocks positioned
 3. Jockey wheel wound up / parked
 4. Hand brake released
 5. Overrun device / coupling head covered
- ▶ If you intend to park the trailer for a long time, set it down on the drawbar support.
 - The inclined position helps prevent the cargo bed from becoming waterlogged or ice from forming.
 - ▶ Place the wheel chocks under the wheels.
 - ▶ Insert the plug into the parking socket.
 - ▶ Use covers to protect the trailer from weathering.
 - ▶ Occasionally remove any dirt or foreign bodies from the trailer.



Trailer secured against theft

1. Locking shoe
 2. Cover hood
- ▶ Attach an anti-theft device, e.g. locking shoe (1).
 - ▶ Use a cover hood (2) to protect the overrun device from exposure.

13 Decommissioning/disposal

13.1 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 use by third parties e.g. secure the electrical supply from being switched on.
- ▶ Do not park 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 inactivity.
- ▶ Secure the trailer with wheel chocks.
- ▶ Have any environmentally hazardous operating materials / substances (oil, battery, etc.) professionally removed.

13.2 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.

During dismantling work:

- ▶ Use     .
- ▶  after working with oil and lubricants.

13.2.1 Electronic waste, old tyres





Environmental pollution!



Trailers contain environmentally harmful operating materials / substances. Their disposal is subject to monitoring.

- ▶ 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.

Waste oil / lubricants

- ▶   Waste oil, grease, oily rags, and hoses must be drained into appropriate vessels and disposed of.


Electrical and electronic scrap

- ▶ Dispose of electrical and electronic components at your local recycling centre (electronic waste recycling).

Tyres



The disposal / recycling of old tyres is subject to national stipulations / regulations.

- ▶  Old tyres must not be disposed of in the environment. They are disposed of through the local council.
- ▶ Enquire in advance at the public disposal centres in your region.

14 Troubleshooting



Use this table to repair the basic operating functions of your trailer in the event of a fault.

Fault	Possible cause	Solution
The coupling does not engage	Internal parts of the coupling (spherical cup, shell, spring) are dirty, frozen or rusty.	▶ 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. The distance from the middle of the ball head to the floor should be 430 ± 35 mm (according to DIN 74058).
	Components of the coupling are worn / faulty.	▶ Have repaired in 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 transmission mechanics, Bowden cables.
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.	▶ Park your car and trailer in a straight line.
Trailer pulls to the right or left	Load is not evenly distributed.	▶ Distribute the load evenly.
	Tyres have different pressures.	▶ Set the tyres on all wheels to the same pressure.
	Load is inadequately secured (so it does not slip) and shift gradually while driving.	▶ Position the load evenly. Secure the load so it does not slip.
	Brake on one of the wheels is set incorrectly and is braking.	▶ Have repaired in a specialist workshop.
Trailer lurches from side to side	Tyre pressure is set too high.	▶ Reduce the air pressure on all tyres. Observe the maximum air pressure values.
	Speed is too high.	▶ Slowly reduce the speed.
	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.
Trailer rattles / squeaks	The load is not secured.	▶ Secure the load properly.
	The cables or hoses work loose.	▶ Have repaired in a specialist workshop.
	Jockey wheel was not cranked up and comes undone from the attachment points.	▶ Crank the jockey wheel up. Re-tighten the fastening connections.
	The hand brake is still engaged.	▶ Release the hand brake.
	Drop sides are not properly closed / secured.	▶ Check the latches / bearing points of drop sides.
	Inadequate lubrication at the lubrication points.	▶ Re-lubricate the lubrication points.
	A wheel bearing is defective or brakes have not been set evenly.	▶ Have repaired in a specialist workshop.
Brakes smoking, overheated	Brake is blocking a wheel. Hand brake is applied.	▶ Check whether the reverse automatic, hand brake is properly released. ▶ Have repaired in a specialist workshop.
	Jockey wheel, lashing straps blocking / pressing on the brake linkage.	▶ Raise the jockey wheel properly. Detach the lashing strap from the brake linkage.
	Cable or Bowden cable bent / deformed. Rust formation in the brake drum.	▶ Have repaired in a specialist workshop.
	Wheel brake is dirty. Return springs are worn or broken.	
Brakes judder	Some transmission parts have too much play.	▶ Have repaired in a specialist workshop.
	Shock absorbers or overrun brake faulty.	

15 Proof of inspection

Type: _____

Vehicle identification number (VIN) _____

Date of purchase: _____

1,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

15,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

30,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

5,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

20,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

35,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

10,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

25,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

40,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

45,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

60,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

75,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

50,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

65,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

80,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

55,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

70,000 km - Inspection

[6 months after the last inspection at the latest]

Stamp / Signature

Date

85,000 km - Inspection

[6 months after the last inspection at the latest]

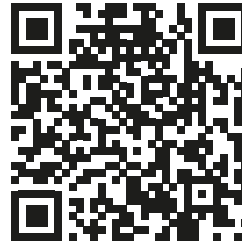
Stamp / Signature

Date

We wish you a pleasant & safe journey...

NOTES:

humbaur.com



We assume no responsibility for printing or other errors or omissions. Subject to technical modifications.
All specifications are approximate values and relate to a series vehicle without accessories.
Printed in Germany. Reprint forbidden · Illustrations similar; some trailers show special equipment ·
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