

Operating Instruction

Three-way tipper
Part 2 - HTK (2 t - 3.5 t)



Competence in Trailers



en



Humbaur GmbH
Mercedesring 1
86368 Gersthofen,
Germany

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

Your dealer

Name

Address

Telephone

Email@.....



Please enter the name of your dealer.
Please fill in the service card on the back page and send it to
Humbaur GmbH.
Ask for the handover inspection to be recorded when accepting your trailer.

Your trailer:

Model

Type (abbreviation)

Vehicle
Identification
Number (VIN)

Registration number



Please enter your trailer type and the identification.
You will find the dimensions / technical data of your trailer in the
vehicle documents.

Notes on use

This operating instruction manual must be carefully read, understood and complied with in full by anyone who is responsible for the trailer of Humbaur GmbH and its modules.

Humbaur GmbH accepts no liability for damage or failures which arise through disregard of this manual!



Read and observe the operating instruction manual with all the instructions, warnings and notes before driving for the first time!

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



Also read and observe the instruction manuals for components such as axles, support devices, cable winches, etc.!

PART 2

This operating instruction manual "Part 2 - HTK three-way tipper" is intended for you as the user of a ready-to-use trailer.

It provides detailed instructions for handling a three-way tipper and its specific accessories.

It contains supplementary information on safe operation, care/cleaning, maintenance/servicing, troubleshooting and decommissioning/disposal of the trailer.

PART 1

For all other general information on trailers up to 3.5 to, see the operating instruction manual, "Trailers up to 3.5 to (General Points – Part 1)."

This specific operating instruction manual (Part 2) for your trailer is provided on the enclosed CD. You can also download it from **www.humbaur.com** in the section: Downloads – Operating manuals

The complete technical documentation is part of the product and should be kept in the driver's cab of the traction unit for reference at all times.

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

Errors excepted. The manufacturer:

Humbaur GmbH Mercedesring 1 89368 Gersthofen (Germany)

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

As a result, no claims whatsoever can be derived from the information, illustrations and descriptions.

Obligations of the operator

The trailer may only be operated in perfect condition.

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

Only utilise trained or instructed personnel.



Ensure that the operating instruction manual is complied with in all life cycle phases of the trailer and that the prescribed personal protective equipment is worn.

Provide the requisite operating and auxiliary materials.

User group

The trailer should only be operated by users who possess the following additional prerequisites and knowledge:

- Experience in handling tippers.
- Initiating tipping processes.
- Loading / unloading bulk goods.

Keyword index

Use the **keyword index** from page **5** to search for **specific** topics.



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

1 Safety

You will find safety information for the correct handling of the trailer in the "Safety" chapter from page **7**.
Read this chapter before driving for the first time.

2 General information

You will find details on trailer identification in the "General information" chapter from page **11**.

3 Operation

You will find information on loading and unloading, correct load distribution and parking in the chapter on "Operation" from page **19**.

4 Operating the chassis

You will find valuable information on the operating elements of the chassis, such as the electro-hydraulic equipment, support devices and loading ramp, in the chapter on "Operating the chassis" from page **31**.

5 Operating the body / load securing

You will find out how to operate the body, drop sides and extensions correctly or about the equipment you can use to secure the load in the chapter on the "Body" from page **57**.

6 Electrical system

You will find information on the lighting in the chapter on the "Electrical system" from page **103**.

7 Testing, care and maintenance

You will find out more about the work required to maintain operational safety and the value of your trailer in the chapter on "Testing, care and maintenance" from page **105**.

8 Troubleshooting guide

You will find information on troubleshooting and important service addresses in the "Troubleshooting guide" from page **123**.

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1

Safety

Intended use

The following is permitted:

- Transport of bulk goods such as sand, gravel, stone, etc.
- Transport of loose load materials such as wood, wood chips.
- Transport of materials and load materials as solid/ packaged load units, such as bricks on pallets.
- Load securing on the cargo bed with lashing brackets using form and force load securing methods.
- Lateral tipping of bulk goods to the right & left as well as to the rear.

Qualification of the personnel

HUMBAUR trailers and bodies and their operating components may only be used and maintained by personnel who are aware of:

- this operating instruction manual.
- the trailer and the associated traction unit.
- the operating and maintenance instructions of the suppliers.
- the German Road Traffic Act (StVO) and German Road Traffic Licensing Regulations (StVZO).
- all the respective health and safety / accident prevention regulations as well as other safety, occupational health and road traffic regulations.
- the basic requirements of goods transport.
- the hazards arising from handling tippers.

Reasonably foreseeable misuse

Any use extending beyond the prescribed transport applications is regarded as other than intended.

In particular, this includes:

- Driving when the drop sides and side wall extension, e.g. steel mesh extension, aluminium extension, are not secured.
- Tipping the cargo bed if personnel / objects are located on the tipping side.
- Tipping the load onto people or objects.
- Driving with a tipped / unsecured cargo bed.
- Driving with folded down / unsecured folding supports at the rear.
- Climbing onto a tipped trailer or walking underneath an unsecured loading bridge.
- Non-observance of the safety instructions in the operating instruction manual "Trailers up to 3.5 to, Part 1 - General".

The manufacturer:

Humbaur GmbH
Mercedesring 1
86368 Gersthofen (Germany)

rejects any damage which arises through disregard of this manual – the risks are borne solely by the user.

Liability exclusion

Any liability of the manufacturer becomes null and void if:

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

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

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

Safety first!

Sources of danger

Take note of the following points without fail:

- Coupling and uncoupling a trailer: Standing in the danger area is prohibited.
- Driving with unsecured support devices.
- Driving with unsecured ramps (loading ramps).
- Clearance heights on the route, while loading and unloading.
- Driving with a tipped cargo bed - not permitted by law.
- Exceeding the permissible gross weight or one-sided overloading through incorrect loading.
- Poorly secured or unsecured goods and / or body components.
- Reversing - keep an eye on the rear area.
- Excessive twisting while manoeuvring.
- Overloading of the trailer, axles and brakes.
- Overstressing caused by fitting incorrect wheel and tyre sizes.
- Use of wheels with incorrect offsets, one-sided run-out or centrifugal imbalance.
- Overstressing as a result of reckless and inappropriate driving or handling.
- Impact and shock stress of the axles.
- Speed inappropriate for the road conditions and the loading status of the trailer, especially in bends.
- The parked trailer can tilt or sink in on soft uneven ground.
- Driving on severe inclines.
- Tilting the loading bridge too close to a slope or excavation.
- Loading / unloading of the trailer in an area with a steep gradient.
- Standing on / in a tipped / moving cargo bed.
- Going under an unsecured loading bridge.

- Jerky braking during tipping.
- Tipping with an engaged parking brake.
- Failure to clean the cargo bed after every use.
- Tipping viscous load materials e.g. asphalt, soil, loamy sand.
- Tipping large rocks.
- Tipping with an inclined combination.
- Tipping under high-voltage transmission lines (open power lines).

In the chassis area

Note the following in general:

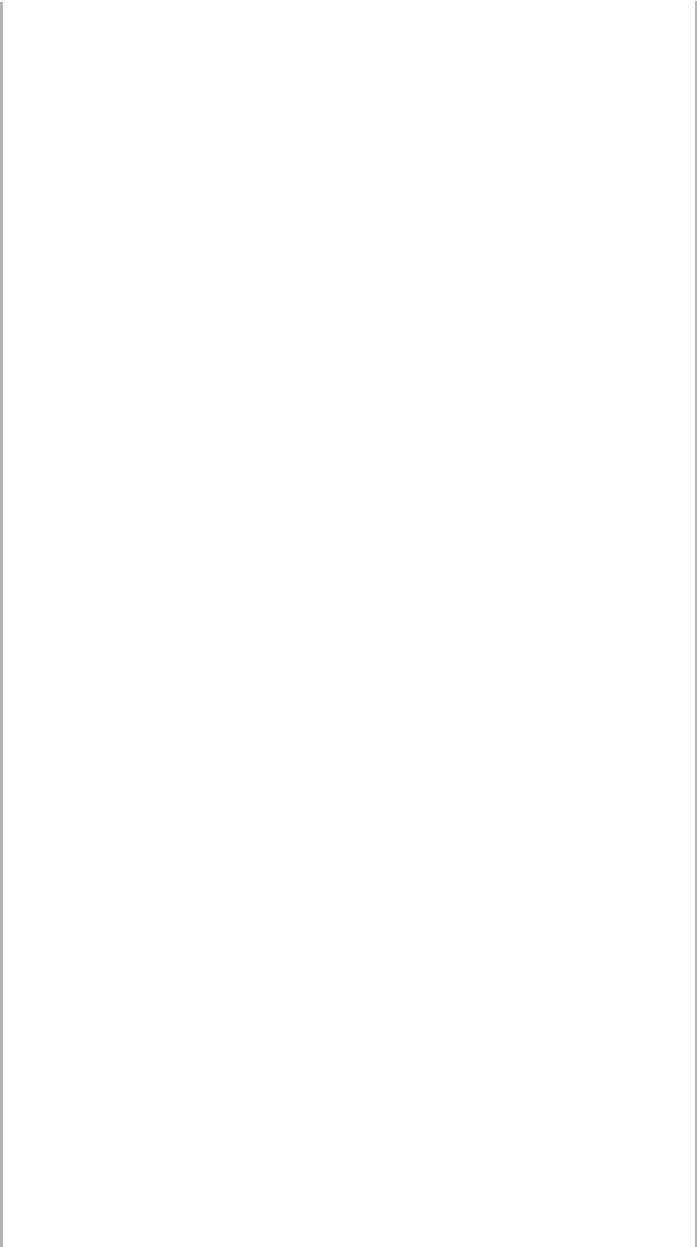
- Establish the electrical connections.
- Retract the support devices and lock them.
- Check the tyres and rims for damage.
- Check the tyre pressure, including the spare wheel.
- Check the tightening torque of the wheel nuts.
- In the case of a new trailer, re-tighten the wheel nuts after 50 km and after the first journey with a load.
- Secure the:
 - spare wheel / spare wheel holder, wheel chocks
- Check the trailer lights, repair defective lights.
- Comply with the permissible gross weight.
- Check the number plate and signs.
- Check that the trailer coupling is in perfect condition.

In the body area

Close and secure all body components, such as:

- Loading ramps
- Drop sides
- Side wall extension
- Steel mesh extension
- Aluminium extension
- H-frame

- Flat cover
- Tarpaulin cover / frame
- Toolbox
- Load securing equipment
- Fix and secure the load.
- Ensure that the load distribution is balanced.





2

General information

Three-way tipper HTK



I - 001

Fig. 1 General view

1 Aluminium drop side

The HTK is a tandem trailer which can be tipped on three sides. The trailer is available with drop sides in aluminium or steel and equipped with an automatic jockey wheel as standard.

The galvanised platform floor is 2 mm thick.

The drop sides can be folded down on all sides and are 350 mm high.

All the drop sides can be removed.

Once the drop sides and stanchions have been removed, the HTK trailer can be driven as a flat-bed trailer.

The HTK trailer features a hydraulic tipping system for tipping the cargo bed. This can be operated with an electric hydraulic pump or a manual pump.

The loading bridge can be tipped backwards by up to 45° by means of a 3-step hard chromium-plated telescopic cylinder.

The load can be secured by means of the tie-down rings. The recessed tie-down brackets have a lashing capacity of up to 800 daN (kg).

The load capacity ranges from 1335 kg to a max. of 2360 kg.

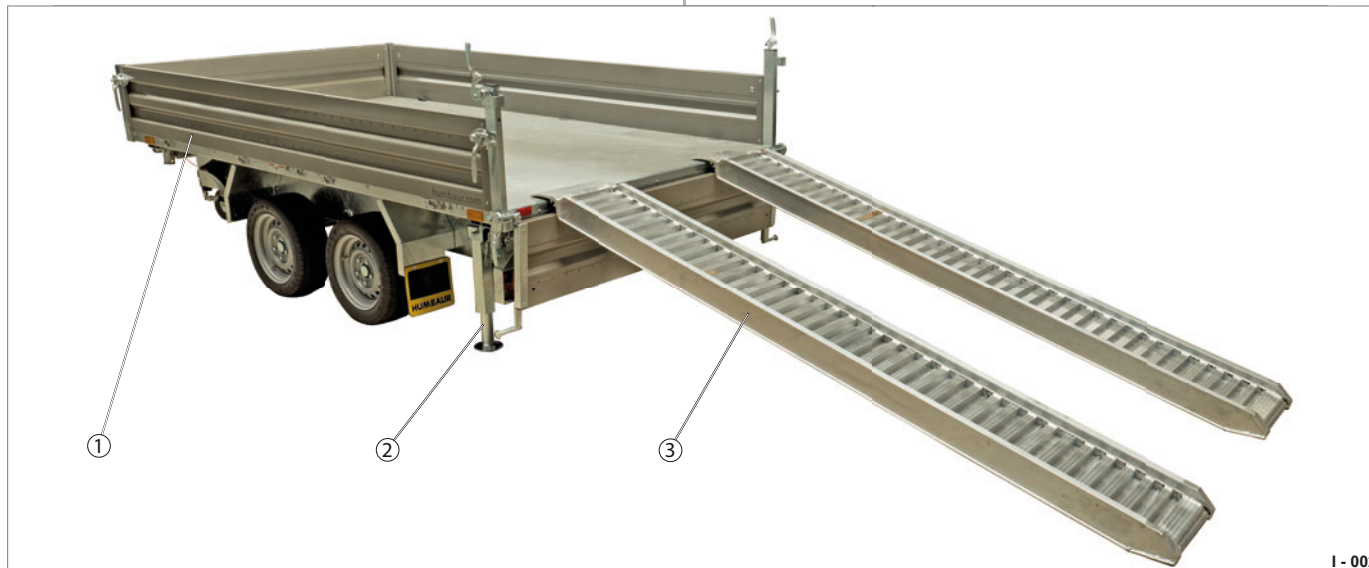


Fig. 2 General view with loading ramp

- 1 Steel wall
- 2 Telescopic prop stand
- 3 Loading ramp (aluminium)

Optional accessories such as drop side extension, steel mesh extension, aluminium extension, H-frame, cover net, flat and tarpaulin cover, telescopic prop stands, toolbox, loading ramp, spare wheel, maintenance brace, towing connection, wheel shock absorbers and an electric hydraulic pump are available for the HTK.

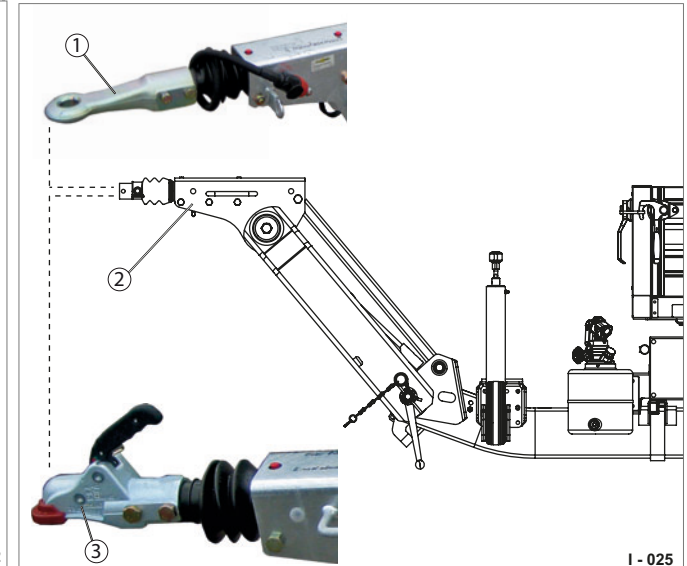


Fig. 3 Height-adjustable drawbar

- 1 Towing eye
- 2 Height-adjustable drawbar
- 3 Ball trailer coupling

A height-adjustable drawbar is available as an option. This is compatible with a towing eye and a ball trailer coupling.



I - 003

Fig. 4 Tipping position, to the side

- 1 Loading bridge
- 2 Telescopic cylinder
- 3 Arresting/securing cord

The HTK can be tipped on three sides.
The chassis and the tipping platform are welded and hot-dip galvanised in an immersion bath.



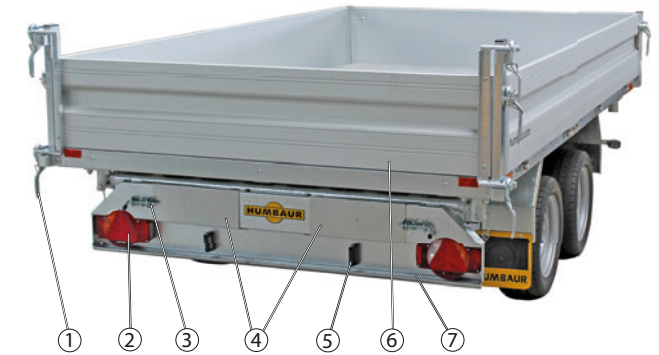
I - 004

Fig. 5 Front view

- 1 Hand button
- 2 Manual emergency pump

The hydraulic tipping system for tipping the cargo bed can either be operated with an electric hydraulic pump or a manual pump.

The version of the HTK with an electric hydraulic pump is also equipped with an emergency hand pump for use if no power is available.



I - 014

Fig. 6 Rear view

- 1 Rotary lever lock
- 2 Tail light, combined with triangular reflector, indicator, brake light, rear fog light, possibly reversing light, position lamp
- 3 Locking bolt fastener
- 4 Ramp slot
- 5 Number plate light
- 6 Rear drop side
- 7 Underride protection

The ramp slots in the chassis frame / underride protection enable the loading ramp to be carried.



I - 005

Fig. 7 HTK three-axle trailer

The HTK is available as a three-axle trailer as an option.

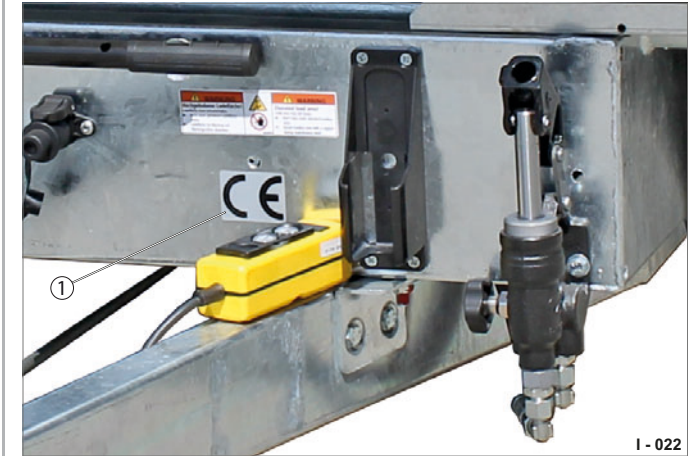


I - 006

Fig. 9 Steel wall

1 Steel wall

CE conformity



I - 022

Fig. 11 CE conformity

1 CE sticker



I - 026

Fig. 8 HTK three-axle trailer, tipped.



I - 007

Fig. 10 Aluminium drop side

1 Aluminium drop side

CE Humbaar GmbH hereby confirms that all the relevant EU directives for the approval and safe use of HTK trailers have been complied with.

► If required, request an EC declaration of conformity from us separately.

Load securing



I - 008

Fig. 12 Lashing lug

Loading ramps



I - 010

Fig. 14 Loading ramps

Steel mesh extension



I - 015

Fig. 16 Steel mesh extension

Support leg



I - 009

Fig. 13 Support leg

Drop side extension



I - 016

Fig. 15 Drop side extension

Aluminium extension



I - 017

Fig. 17 Aluminium extension

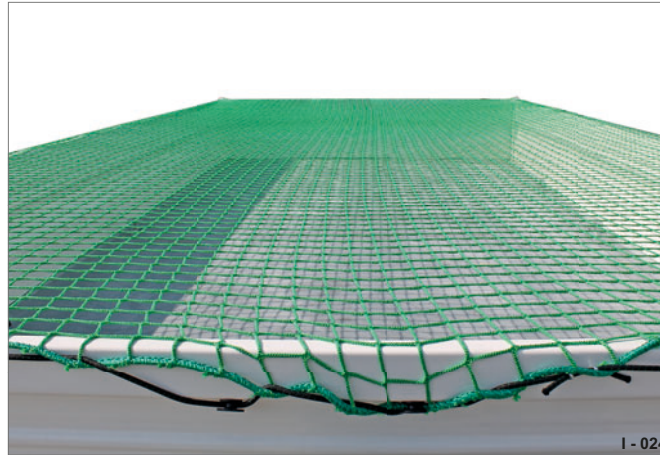
Flat cover



I - 018

Fig. 18 Flat cover

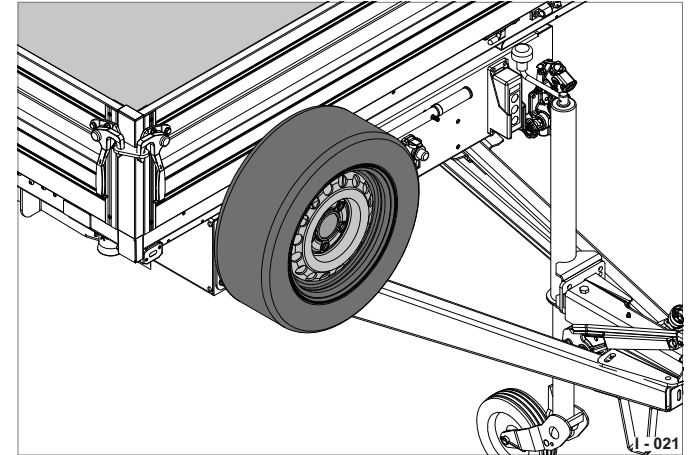
Cover net



I - 024

Fig. 20 Cover net

Spare wheel



I - 021

Fig. 22 Spare wheel / holder

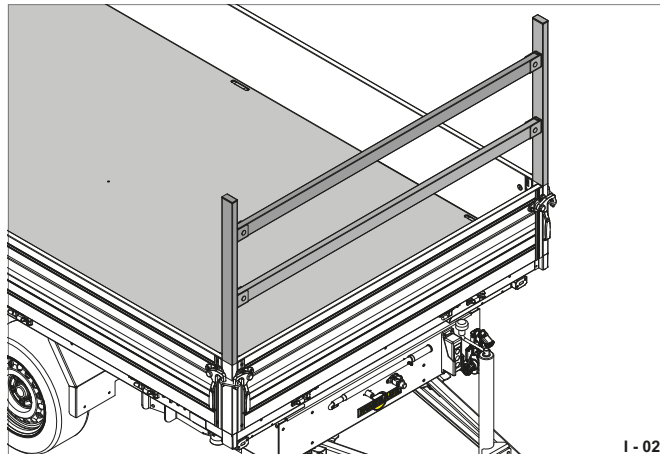
Tarpaulin cover / frame



I - 019

Fig. 19 Tarpaulin cover

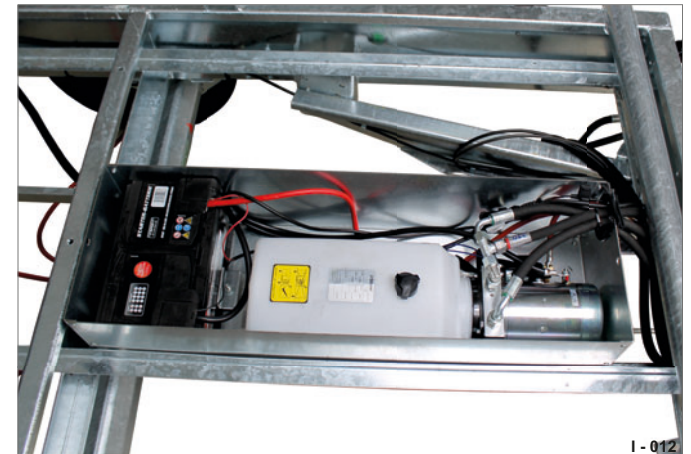
H-frame



I - 020

Fig. 21 H-frame

Electro-hydraulic equipment



I - 012

Fig. 23 Electro-hydraulic equipment

Remote control of the electro-hydraulic system



Fig. 24 Hand button and emergency hand pump

Maintenance brace



Fig. 25 Maintenance brace for securing the loading bridge



Competence in Trailers



3

Operation



Take note of the safety / driving instructions for driving with the towing vehicle and trailer stated in the operating instruction manual
"Trailers up to 3.5 to" - General - Part 1.



Prerequisites for safe driving with a trailer:

- The body must be completely closed for driving or all drop sides and stanchions must have been removed.
- Only drive with the cargo bed tipped back.
- The goods must be properly tied down/secured.
- Bulk goods must be covered, e.g. by a tarpaulin.
- The tilting bearings must be pinned when transporting loads with a high tilting moment e.g. excavator at the rear.
- The permissible gross weight and the axle loads must be complied with.
- Keep the centre of gravity of the load as low as possible: Distribute the goods evenly - avoid point / one-sided load distribution.
- Comply with the load securing guidelines pursuant to VDI 2700.



DANGER

Driving with a tipped cargo bed

The cargo bed could be ripped off or involved in a collision when driving under overhangs/tunnels - danger of serious accident!

The trailer could be overloaded at the chassis through the effects of dynamic force - risk of fracture / risk of accidents!

- ▶ Before setting off, make sure that the cargo bed has been tipped back and is resting completely on the chassis (tilting bearings).
- ▶ Check that the electric hydraulic pump and the electro-hydraulic system have been switched off and are in the driving position.
- ▶ Ensure that the pump lever has been secured.



WARNING

Driving with support devices which have not been retracted and secured

The support devices (jockey wheel / telescopic prop stands) could be torn off and hurled away while driving - risk of accidents!

- ▶ Before setting off, make sure that all support devices have been retracted and secured.



WARNING

Driving with loading ramps which have not been correctly stowed away / opened drop sides.

People may be caught and dragged along.

- ▶ Before setting off, make sure that the loading ramps have been stowed away in the ramp slots and secured.
- ▶ Before setting off, make sure that all drop sides / flaps / toolboxes have been closed and secured.

Notes on driving with the towing vehicle and trailer



Fig. 1 Transport of high construction machinery



DANGER

High tilting moment

The trailer can tilt when cornering with the loading bridge pinned at the side on account of the high centre of gravity - risk of accidents!

- ▶ Before setting off, make sure that the loading bridge is pinned at the rear - the loading bridge is thereby secured by additional mechanical fastening.
- ▶ Carry out a departure check (see operating instruction manual, "Trailers up to 3.5 to" (General Points - Part 1).
- ▶ Adapt your driving style to the road and weather conditions!
- ▶ Reduce your speed and drive particularly carefully around bends and when turning!
- ▶ Start braking processes smoothly (not suddenly)



Fig. 2 Telescopic prop stands lowered

NOTICE

Loss of stability during loading / unloading

The rear axle and the chassis could be damaged / overloaded.

- ▶ Before loading / unloading the trailer, check that the rear support legs have been lowered and locked - these stabilize the trailer and relieve the axle.



WARNING



Driving on the trailer

The trailer could tilt to the side when being driven on or with an uneven load distribution - crushing / impact risk!

- ▶ Secure the trailer with support devices before loading / unloading or connect it to the traction unit.
- ▶ Do not load / unload the trailer standing at right angles to a slope (area with a steep gradient) - danger of tipping over!



Fig. 3 Driving on the trailer



WARNING



Overloading the loading ramps

The loading ramps can be deformed.

The vehicle can fall off / tip over - crushing / impact risk!

- ▶ Observe the type plate with the max. load specifications.
- ▶ Observe the maximum values.

Loading / unloading vehicles



WARNING



Restricted view

People may not be seen and be run over when reversing.

- ▶ Use the mirrors to correctly assess the danger area around the vehicle.



- ▶ Have a second person direct you.



WARNING

Loading ramps not secured

The loading ramps could slip off the edge of the cargo bed and the load vehicle could tip off the loading ramps - crushing / impact risk!

- ▶ Before loading/unloading, check that the loading ramps are secured to the edge of the cargo bed.



Fig. 4 Setting the track width



WARNING

Loading ramps set to an incorrect track width

The load vehicle could tip off the loading ramps - crushing / impact risk

- ▶ Adjust the loading ramps to the correct track width before loading/unloading.

Procedure:

- ▶ Park the trailer on a firm surface to prevent it from sinking in or tipping over.
- ▶ Secure the trailer against rolling away.
- ▶ Apply the parking brake and secure the trailer with wheel chocks.
- ▶ Lower the telescopic prop stands.
- ▶ Adjust the loading ramps to the required track width.
- ▶ Check that the loading ramps are secured.
- ▶ Drive slowly up the loading ramps.
- ▶ Drive on the trailer in a straight line - not at an angle from the side.

Loading and unloading bulk goods

**WARNING****Dirty / wet cargo bed**

The cargo bed can become slippery through dirt, water or ice - slip / fall hazard!

- ▶ Step on the cargo bed carefully and watch out for dirty, wet / icy areas.
- ▶ If required, clean the dirty areas before stepping onto the cargo bed.

**WARNING****Moving load**

There is increased risk of injury during loading / unloading. People can cut themselves and be crushed.



Use

**WARNING****Stepping on the cargo bed**

People can fall when climbing up to / down from the cargo bed / the chassis via mudguards, drawbar, chassis and toolboxes.



- ▶ Use
- ▶ Take care when stepping on to the cargo bed.
- ▶ Never step on to a tipped cargo bed.
- ▶ Do not jump on to the cargo bed or down from the cargo bed.
- ▶ If required, use a stable ladder for climbing up and down.

**WARNING****Loading / unloading with a crane**

The fixing attachment could tear and the load drop - suspended loads can hit / crush people!



- ▶ Use
- ▶ Never stand under suspended loads.



- ▶ Keep people out of the danger area.

**WARNING****Load / load securing elements on the cargo bed**

The cargo bed can be blocked by the load, squared timbers, tension belts and pallets - trip hazard!

- ▶ Provide adequate lighting on the cargo bed.
- ▶ Store unneeded pallets, tension belts and tools in the storage areas intended for this purpose.
- ▶ Keep the cargo bed clean.

**WARNING****Loading bulk goods**

When bulk goods are loaded onto the trailer, they may get pressed against the drop sides. Unsecured drop sides may spring open, presenting a hitting / crushing risk!

- ▶ Before loading bulk goods, make sure that all drop sides / bodies are closed and secured.

**WARNING****Tipping while driving**

The load slides off the cargo bed in an uncontrolled manner - crushing / impact risk!

- ▶ Only carry out tipping processes while the trailer is standing still.



Fig. 5 Unloading bulk goods

WARNING

Unloading bulk goods
 The load can press against the drop sides. The load pressure could cause the drop sides to snap open when the locks are unlatched - impact risk!

- ▶ Stand to one side when unlocking the drop sides – not directly in front of them.
- ▶ If required, first remove the bulk goods from the drop side to be opened to relieve the pressure.

CAUTION

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

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



Fig. 6 Tipped at the rear / danger areas

Procedure:

- ▶ Make sure that traffic is not obstructed.
- ▶ Secure the area if necessary.
- ▶ Before starting to tip, ensure that the trailer is hooked up (fixed in position) and has been connected to the hydraulic system and activated.
- ▶ When loading the trailer, distribute the load evenly across the cargo bed.
- ▶ Never stand in the danger area when loading or unloading bulk goods.
- ▶ Keep people out of the danger area.
- ▶ Before starting to tip, make sure that the tilting bearings are correctly set and secured.
- ▶ Open the drop side on the tipping side.
- ▶ Lift the cargo bed until the material flows out slowly and evenly.
- ▶ Tip the load in a controlled manner.
- ▶ Never step on the cargo bed or the chassis during tipping.

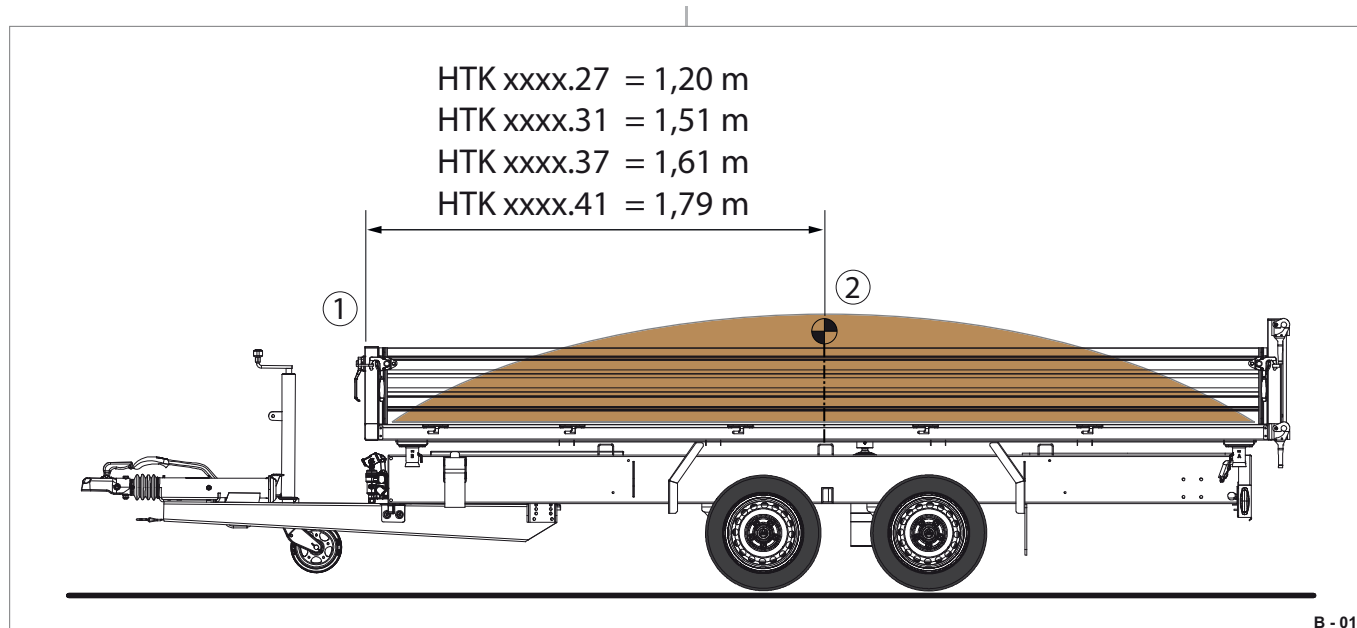


Fig. 7 Tipped at the side / danger areas

 WARNING Hochgehobene Ladefläche! Ladefläche kann herunterfallen. ▶ Nicht unter gehobene Ladefläche treten. ▶ Ladefläche bei Wartung mit Wartungsstütze absichern.	 620.00034	 WARNING Elevated load area! Load area may fall down. ▶ Don't step under elevated loading area. ▶ Secure loading area with a support during maintenance work.
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- ▶ Note the warning sticker on the trailer.

Permissible weights and load distribution

**Fig. 8** Centre of gravity indication

- 1 Distance of the centre of gravity of the load from the front wall of the cargo bed
- 2 Centre of gravity of the load

Stow away / distribute the load in such a way that the centre of gravity of the overall load is above the longitudinal centre line of the trailer as far as possible.

Keep this centre of gravity as low as possible.

Load your trailer within the limits of the permissible gross weight, the permissible axle loads and the permissible drawbar load.

Also aim for an even weight distribution in the case of a partial load, so that each axle is proportionally loaded and a sufficient drawbar load is provided.

The maximum load capacity of the trailer can only be obtained if the overall centre of gravity of the load is within the permitted range.

Restrict point loading of the cargo bed to the permissible extent through suitable load distribution measures.

Loads	Max. weights
perm. gross weight	2,000 kg
Drawbar load (S)	50 kg
Unladen weight	approx. 665 kg
Load capacity	approx. 1,335 kg

Tab. 1 HTK 2000.27

Loads	Max. weights
perm. gross weight	2,700 kg
Drawbar load (S)	50 kg
Unladen weight	approx. 675 kg
Load capacity	approx. 2,025 kg

Tab. 2 HTK 2700.27

Loads	Max. weights
perm. gross weight	2,700 kg
Drawbar load (S)	50 kg
Unladen weight	approx. 860 kg
Load capacity	approx. 1,840 kg

Tab. 3 HTK 2700.31

Loads	Max. weights
perm. gross weight	3,000 kg
Drawbar load (S)	50 kg
Unladen weight	approx. 900 kg
Load capacity	approx. 2,130 kg

Tab. 4 HTK 3000.31

Loads	Max. weights
perm. gross weight	3,500 kg
Drawbar load (S)	50 kg
Unladen weight	approx. 900 kg
Load capacity	approx. 2,600 kg

Tab. 5 HTK 3500.31

Loads	Max. weights
perm. gross weight	3,000 kg
Drawbar load (S)	100 kg
Unladen weight	approx. 900 kg
Load capacity	approx. 2,100 kg

Tab. 6 HTK 3000.37

Loads	Max. weights
perm. gross weight	3,500 kg
Drawbar load (S)	100 kg
Unladen weight	approx. 1,015 kg
Load capacity	approx. 2,485 kg

Tab. 7 HTK 3500.37

Loads	Max. weights
perm. gross weight	3,500 kg
Drawbar load (S)	100 kg
Unladen weight	approx. 1,185 kg
Load capacity	approx. 2,315 kg

Tab. 8 HTK 3500.41

Loads	Max. weights
perm. gross weight	3,500 kg
Drawbar load (S)	100 kg
Unladen weight	approx. 1,140 kg
Load capacity	approx. 2,360 kg

Tab. 9 HTK 3500.41 Tridem

Uncoupling

In the tipper trailer, the wheel chocks are attached to the chassis in the front section of the trailer as standard.



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



Wheel chocks must always be available. Replace any lost or damaged wheel chocks immediately.



WARNING



Incorrectly uncoupled trailer

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

► Only uncouple the trailer when it is empty.

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

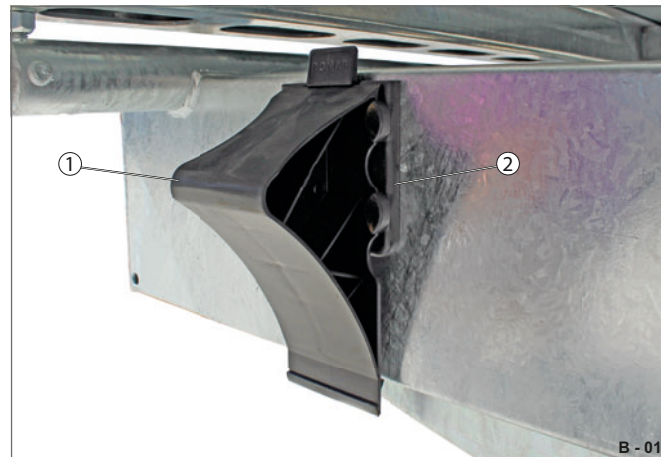


Fig. 9 Wheel chock in the holder

- 1 Wheel chock
- 2 Holder



WARNING

Unsecured wheel chocks

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

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

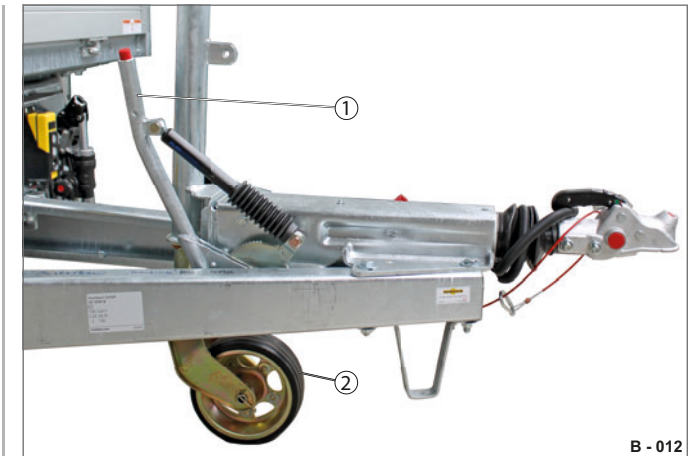


Fig. 10 Trailer, parked

- 1 Hand brake lever, applied
- 2 Jockey wheel, lowered

Manipulating the wheel chocks

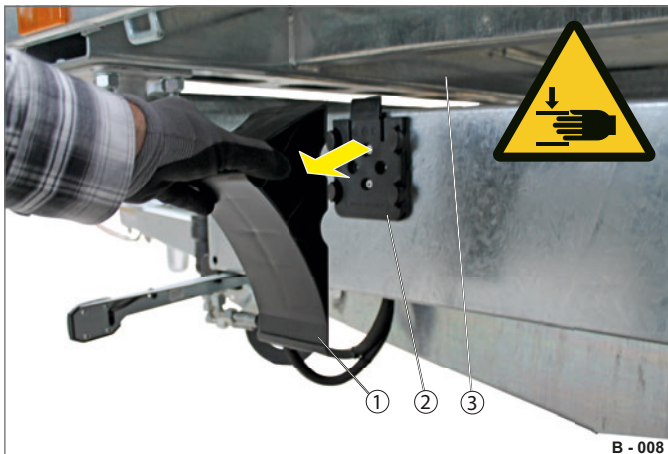


Fig. 11 Risk of crushing

- 1 Wheel chock
- 2 Holder
- 3 Loading bridge



Observe the safety instructions for manipulating the wheel chocks in the operating instruction manual, "Trailers up to 3.5 to – General - Part 1."



CAUTION



Removing the wheel chocks

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



- ▶ Use .
- ▶ Manipulate the wheel chocks slowly and carefully.
- ▶ Avoid jerky movements.

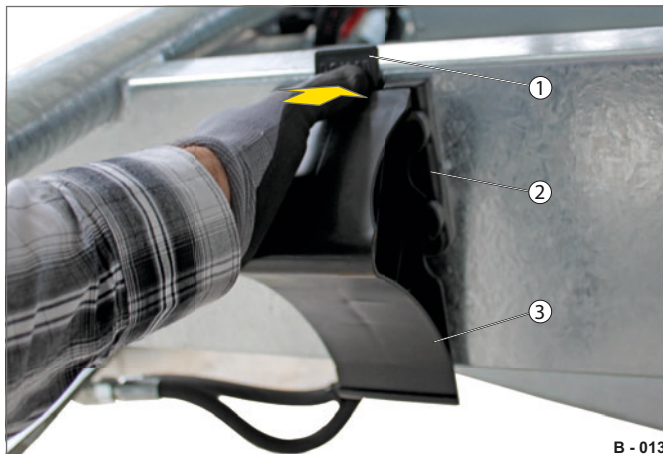


Fig. 12 Removing the wheel chock

- 1 Lever
- 2 Holder
- 3 Wheel chock

- ▶ Press the lever (Fig. 12 /1) of the holder (Fig. 12 /2).
- ▶ Remove the wheel chock (Fig. 12 /3) at the same time.
- ▶ Place the wheel chocks in the holders after use.

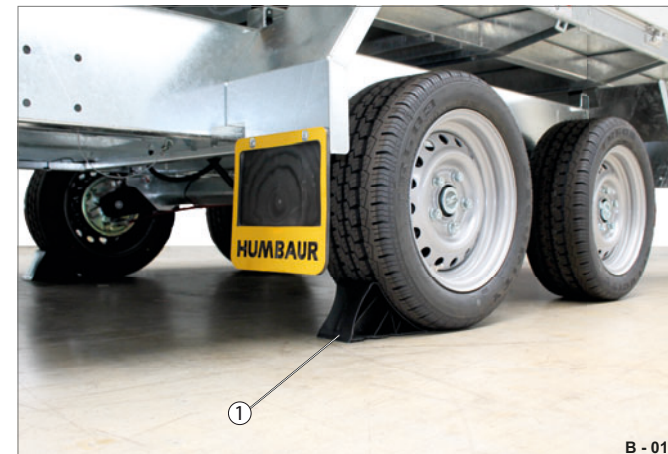


Fig. 13 Wheel chocks positioned

- 1 Wheel chock

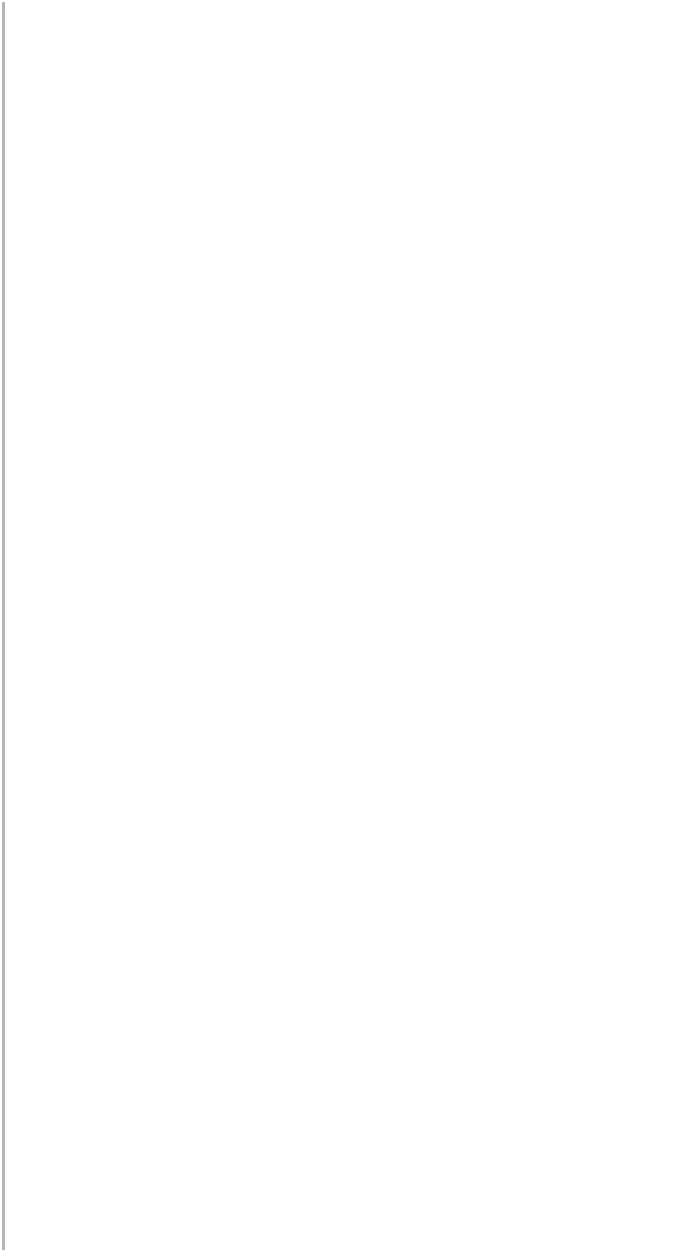
- ▶ Place the complete surface of the wheel chocks (Fig. 13 / 1) under the wheels. Consider the direction of inclination of the trailer e.g. on a slope.

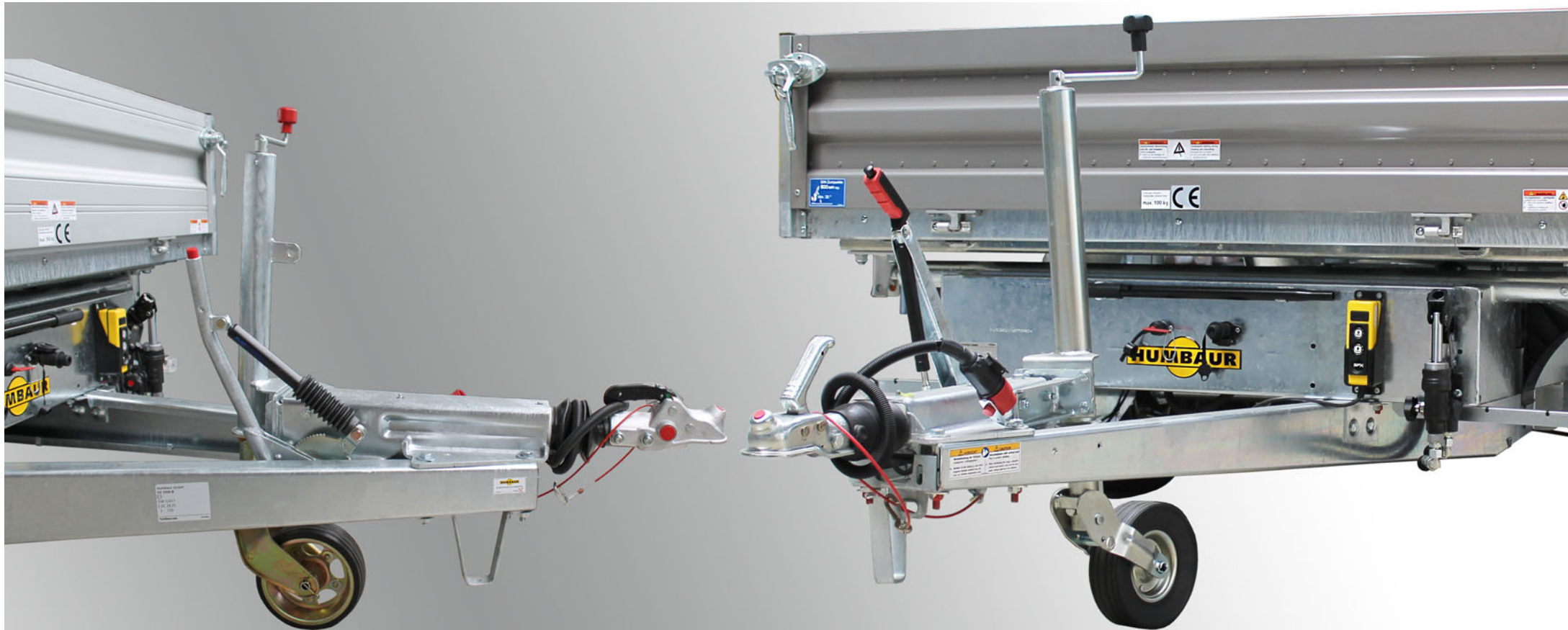
Check before departure

- Trailer has been correctly coupled.
- Electrical plug has been connected.
- Towing connection has been disconnected and parked.
- Cargo bed has been tipped back.
- Parking brake has been released.
- Telescopic prop stands have been raised and locked.
- Drop sides / extensions / flaps / ramp slots have been closed and secured.
- Toolbox has been locked and secured.
- Loading ramps have been stowed away and secured.

Check when parking

- Trailer has been correctly uncoupled.
- Parking brake has been applied.
- Wheel chocks have been positioned.
- Cargo bed has been tipped back.
- Electrical plug has been parked.
- Drop sides / extensions / flaps / ramp slots have been locked.
- Loading ramps have been stowed away and secured.
- Toolbox has been locked.





4

Operating the chassis

Design variants

The telescopic cylinder of the trailer for tipping the cargo bed is actuated by a hydraulic system.

The following variants are possible:

- Manual pump
- Electro-hydraulic equipment with emergency hand pump (option)
- Electro-hydraulic system with towing connection (option)

The cargo bed can be tipped by means of the manual pump and with an electric hydraulic pump as an option or also via the towing vehicle by means of a towing connection.

The hydraulic system is designed as a 2-circuit system.

The hydraulic system is filled with hydraulic oil HLP ISO 46 in the factory and commissioned.

The "Hydraulic connection for tractors" variant can also be combined with a manual or electric hydraulic pump. This permits operation on different towing vehicles.



DANGER

Excessive operating pressure

The max. permissible pressure is exceeded - the lines could burst / components are damaged.

People will be injured by the escaping oil - risk of accidents!

- ▶ Comply with the maximum specifications for oil pressure and oil quantity - see sticker on the trailer.
- ▶ Contact a specialist workshop in the case of a defective hydraulic system.



DANGER

Incorrectly adjusted tilting bearings

The cargo bed is tipped with diagonally mounted tilting bearings. The telescopic cylinder can deform the cargo bed to the extent that the cargo bed breaks.

Splinters may be thrown out - risk of being hit / injured!

- ▶ Before starting to tip, make sure that the tilting bearings have been correctly set and secured.
- ▶ Secure the cargo bed with tilting bearings either on both sides or with the two rear tilting bearings.



WARNING

Lines are under pressure

The hydraulic line is under pressure when it is uncoupled.

The oil can escape under high pressure and cut people / shred skin!

- ▶ Before uncoupling, check that the lines are not under pressure and the traction unit has been switched off.



- ▶ Use



WARNING



There may be a loss of stability while tipping!

The trailer could tip to the side when the cargo bed is tipped - danger of crushing/accident!

- ▶ Only carry out tipping processes while the trailer is standing still and coupled with a vehicle.
- ▶ Before initiating the tipping process check that:
 - The trailer is standing on level ground and is stable.
 - The air pressure in all the tyres on the trailer is the same.
 - It is located at least 2 m from the slope/excavation pit.
 - There is no heavy crosswind (recommended up to a max. of 5 Bft, approx. 35 km/h - deciduous trees sway)
 - The entire combination (trailer with towing vehicle) is in line/straight.



CAUTION



Driving with the pump lever unsecured!

The pump lever can come loose from its holder and fall onto the road.

People may be hit - accident risk!

- ▶ Ensure that the pump lever is secured before driving off.

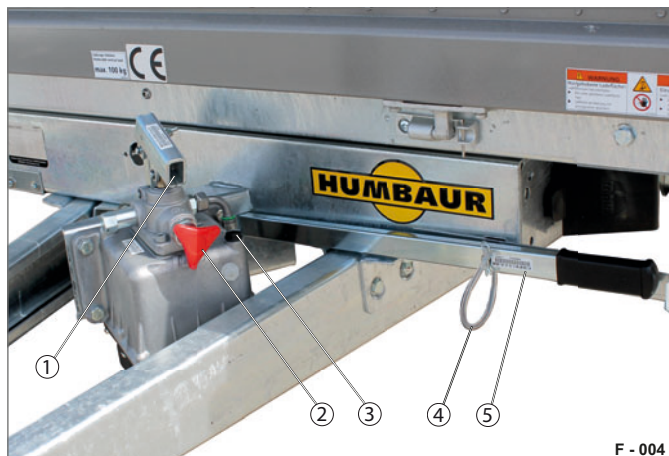
NOTICE

Using incorrect / old hydraulic oil

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

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

Manual pump



F - 004

Fig. 1 Operating elements

- 1 Insertion opening
- 2 Valve wheel
- 3 Oil filler neck
- 4 Securing device
- 5 Pump lever

The manual pump is mounted in the middle of the V drawbar. The pump lever is mounted on the chassis and secured.

The technical data of the hydraulic system:

- 10 litres of oil
- Ambient temperature - 30° to + 100°

Tipping the cargo bed

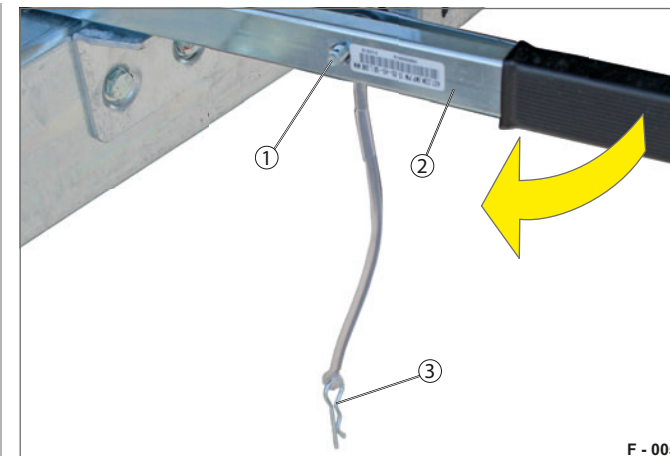


F - 008

Fig. 2 Close the valve wheel

- 1 Valve wheel

- ▶ Turn / close the valve wheel (Fig. 2 /1) by turning in a clockwise direction.

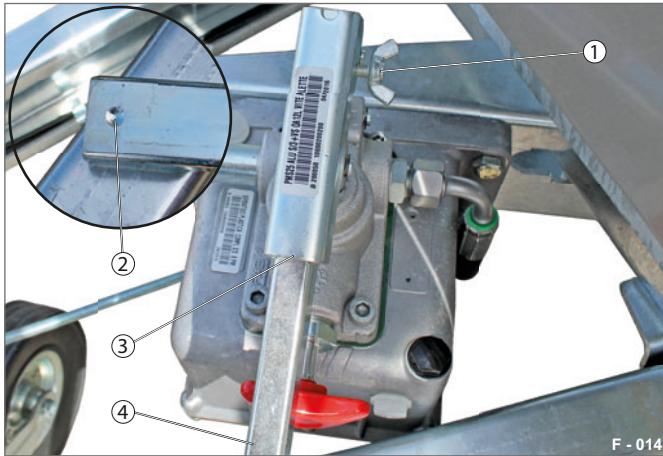


F - 005

Fig. 3 Release the pump lever

- 1 Bolt
- 2 Pump lever
- 3 R-clip

- ▶ Remove the R-clip (Fig. 3 /3) from the hole of the bolt (Fig. 3 /1).
- ▶ Remove the pump lever (Fig. 3 /2).

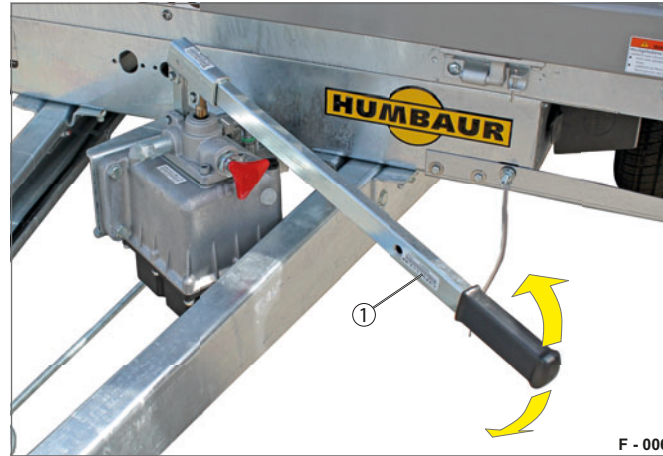


F - 014

Fig. 4 Insert and secure the pump lever

- 1 Wing nut
- 2 Indentation on the pump lever
- 3 Insertion opening
- 4 Pump lever

- ▶ Unscrew the wing nut (Fig. 4 /1).
- ▶ Insert the pump lever (Fig. 4 /4) in the insertion opening (Fig. 4 /3) with the indentation (Fig. 4 /2) in the direction of the wing nut.
- ▶ Screw up the wing nut.
The pump lever has been secured.



F - 006

Fig. 5 Tipping the cargo bed

- 1 Pump lever

- ▶ Move the pump lever (Fig. 5 /1) up and down.
Note:
A few strokes are required at the beginning until the pressure has been built up in the hydraulic system.



F - 015

Fig. 6 Cargo bed tipped

- 1 Cargo bed
- 2 Securing cord

- ▶ Continue until the cargo bed (Fig. 6 /1) is in the desired position and the securing cord (Fig. 6 /2) is taut. (max. tilting angle).
The cargo bed has been tipped.

Tilting back the cargo bed

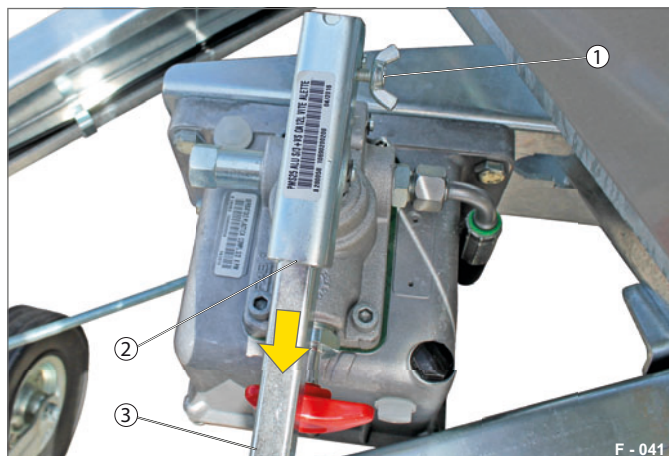


Fig. 7 Remove the pump lever.

- 1 Wing nut
- 2 Insertion opening
- 3 Pump lever

NOTICE

Extended pump piston

The pump piston could oxidise.

- ▶ After tipping, ensure that the pump piston has been retracted.

- ▶ Press the pump lever down so that the pump piston (Fig. 9 /1) is retracted.
- ▶ Unscrew the wing nut (Fig. 7 /1).
- ▶ Remove the pump lever (Fig. 7 /3) from the insertion opening (Fig. 7 /2).
- ▶ Insert the pump lever in the holder.
- ▶ Screw up the wing nut.

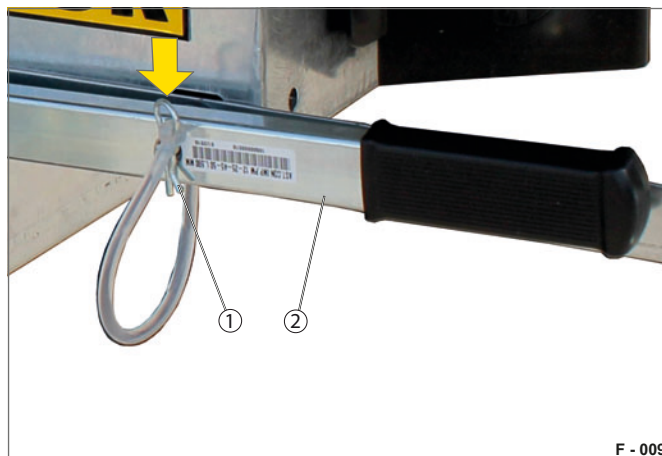


Fig. 8 Secure pump lever

- 1 R-clip
- 2 Pump lever

- ▶ Insert the R-clip (Fig. 8 /1) in the hole of the bolt. The pump lever (Fig. 8 /2) is secured.



Fig. 9 Close the valve wheel

- 1 Pump piston
- 2 Valve wheel

- ▶ Turn / open the valve wheel (Fig. 9 /2) slowly by turning it in an anti-clockwise direction - never open the valve wheel completely. The cargo bed will slowly lower into its original position.

Electro-hydraulic equipment

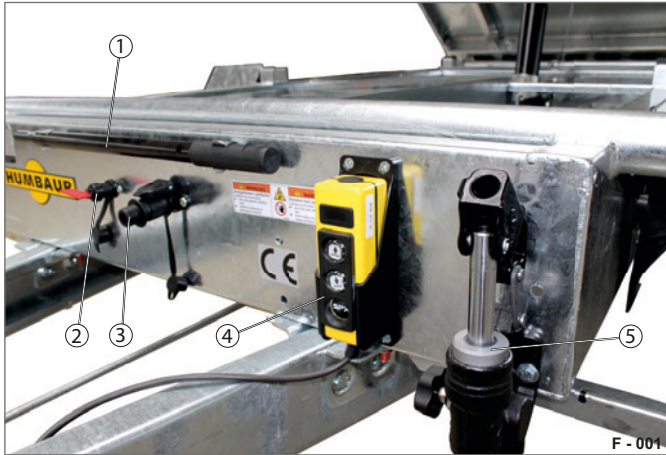


Fig. 10 Electro-hydraulic overview

- 1 Pump lever
- 2 Plug-in switch socket
- 3 Connection for external battery charger (12 V)
- 4 Hand button (cable length 2.5 m)
- 5 Emergency hand pump

The electro-hydraulic equipment consists of an electric hydraulic pump, oil container, supply battery and is integrated in the chassis.

The electric hydraulic pump is supplied with 12 V from a supply battery.

The oil container is filled with hydraulic oil in the factory and commissioned.

The electro-hydraulic equipment can be activated / deactivated via the plug-in switch on the front wall.

The cargo bed is tipped via the telescopic cylinder.

The electro-hydraulic system is operated by means of a hand button.

If the electric hydraulic pump fails, the cargo bed can be tipped with the emergency hand pump.

Charging the supply battery

The supply battery can be charged via the battery charging plug if the power is low.



Please refer to the instruction manual / safety instructions of the battery charger manufacturer.

Refer to page 118 in the Maintenance section with regard to preparation of the charging plug.

Fully charge the supply battery at regular intervals.

Charge tester

The Battery Guard can be used to check the charge status of the supply battery.

You will find the operating principle of this app "IntAct Battery-Guard" in the chapter "Charging the supply battery / Checking the charge status" on page 116 in the Maintenance section.

NOTICE

Discharged / low supply battery!

A discharged or low supply battery in the trailer can cause defective motor-starting relays in the towing vehicle.

- ▶ Check the power of the supply battery at regular intervals.
- ▶ Fully charge the supply battery via an external battery charger.
- ▶ Maintain the power of the supply battery via a trickle charge in the event of prolonged disuse.



WARNING



Danger when handling batteries

Batteries can explode as a result of spark generation or short circuits.

- ▶ Avoid short circuits and the formation of sparks.
- ▶ Do not place any tools / objects on the batteries.
- ▶ Cover the terminals of the batteries prior to starting work on batteries.



- ▶ Do not smoke near batteries and keep naked flames away.



WARNING



Leaking battery acid

Battery acid is corrosive, and there is a danger of acid burns if it comes into contact with you.



- ▶ Seek medical advice immediately in the event of contact.



WARNING

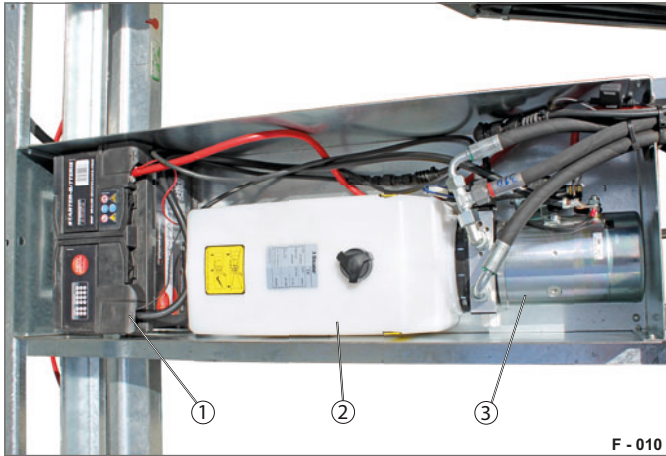


Hot batteries

Bridged batteries can become hot - burn hazard!



- ▶ Allow bridged batteries to cool down prior to starting work on them.



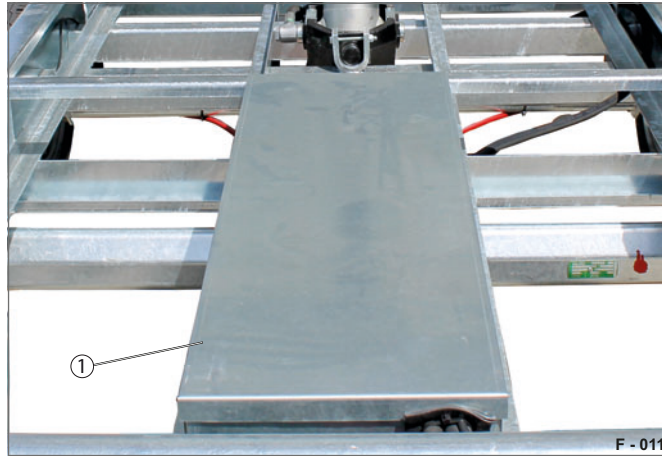
F - 010

Fig. 11 Electro-hydraulic equipment

- 1 Supply battery (12 V)
- 2 Hydraulic oil container
- 3 Electric hydraulic pump



Maintenance / repair work on the electro-hydraulic equipment may only be carried out by trained and qualified personnel in a specialist workshop!



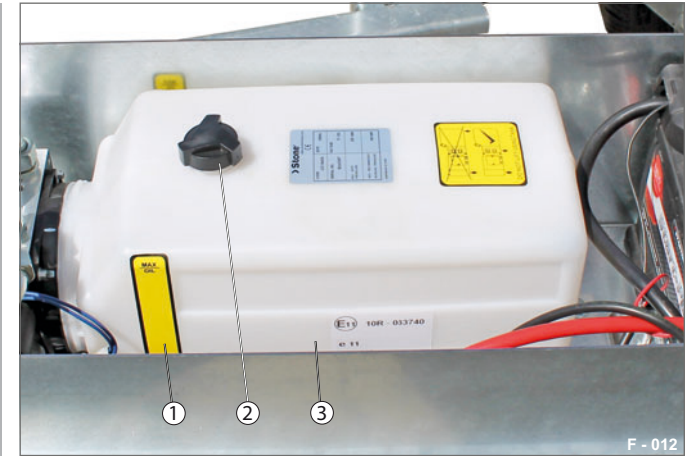
F - 011

Fig. 12 Unit closed

- 1 Cover (galvanised steel plate)



The raised loading bridge must be secured with the maintenance brace when carrying out work on the electro-hydraulic equipment!
See page 171 in the Maintenance section.



F - 012

Fig. 13 Oil quantity

- 1 Checking strip for oil level (Min. / Max.)
- 2 Filling connection
- 3 Hydraulic oil container

You can see the oil level in the oil tank (Fig. 13 /3) on the checking strip (Fig. 13 /1).

The oil level must be between the Min. and Max. limits.



Take note of the safety instructions for handling hydraulic oil in the chapter on “Checking / changing the hydraulic oil” on page 115 in the Maintenance section.

Electro-hydraulic equipment - Tipping the cargo bed



Fig. 14 Operating unit for the electro-hydraulic system

- 1 Plug-in switch
- 2 Covering cap
- 3 Socket for plug-in switch
- 4 Connection for external battery charger (12 V)
- 5 Covering cap
- 6 Hand button
- 7 Holder

- ▶ Before tipping the cargo bed, ensure that the trailer is coupled to the traction unit and that the tip direction has been correctly set.
- ▶ Ensure that the tilting bearings have been correctly attached in required position and secured.

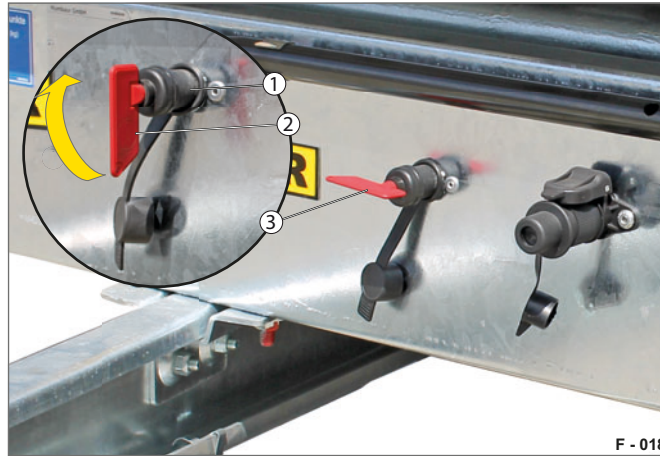


Fig. 15 Plug-in switch: switched to ON

- 1 Socket for plug-in switch
- 2 Plug-in switch: switched to OFF
- 3 Plug-in switch: switched to ON

- ▶ Insert the plug-in holder in the plug-in switch socket (Fig. 15 /1).
- ▶ Turn the plug-in switch (Fig. 15 /3) to ON.

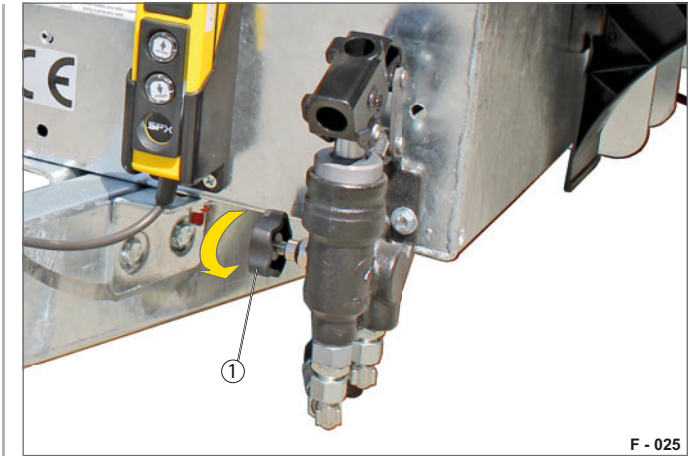


Fig. 16 Close the emergency hand pump valve

- 1 Valve wheel

- ▶ Turn / close the valve wheel (Fig. 16 /1) by turning it in a clockwise direction.



Fig. 17 Tipping the cargo bed

- 1 Button (up)
- 2 Button (down)
- 3 Holder
- 4 Hand button

- ▶ Remove the hand button (Fig. 17 /4) from the holder (Fig. 17 /3).
- ▶ Press and hold the button (arrow up) (Fig. 17 /1) until the cargo bed is in the desired position.
Once it has reached its maximum tipping angle, the electric hydraulic pump is turned off via the limit switch.



Fig. 18 Tipping the cargo bed

- ▶ Monitor the behaviour of the trailer during the tipping process.
- ▶ Stop the tipping process if e.g. the bulk load is not sliding from the cargo bed properly or if the trailer moves in an unexpected way.
- ▶ Carry out the tipping process in inch mode if necessary.
The bulk load slides off of the cargo bed.

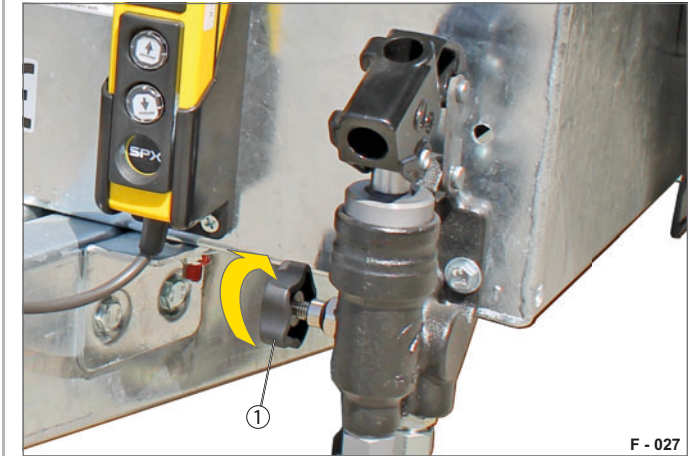


Fig. 19 Opening the valve wheel

- 1 Valve wheel

- ▶ Turn / close the valve wheel (Fig. 19 /1) in an anti-clockwise direction.
The hydraulic lines are blocked against pressure build-up. Electro-hydraulic equipment

Electro-hydraulic equipment - Tilting back the cargo bed



Fig. 20 Close the emergency hand pump valve

- 1 Manual emergency pump
- 2 Valve wheel

- ▶ Turn/open the valve wheel (Fig. 9 /2) by slowly turning it in an anticlockwise direction - never open the valve wheel completely.
The cargo bed will slowly lower into its original position.

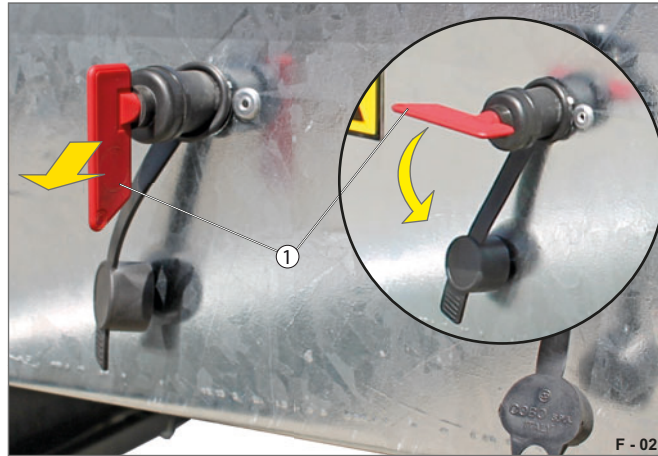


Fig. 21 Electro-hydraulic switched off

- 1 Plug-in switch

- ▶ Turn the plug-in switch (Fig. 21 /1) to OFF.
- ▶ Turn the plug-in switch by another 45° in an anticlockwise direction and remove the plug-in switch from the plug-in switch socket.
- ▶ Keep the plug-in switch in a place where it won't get lost.

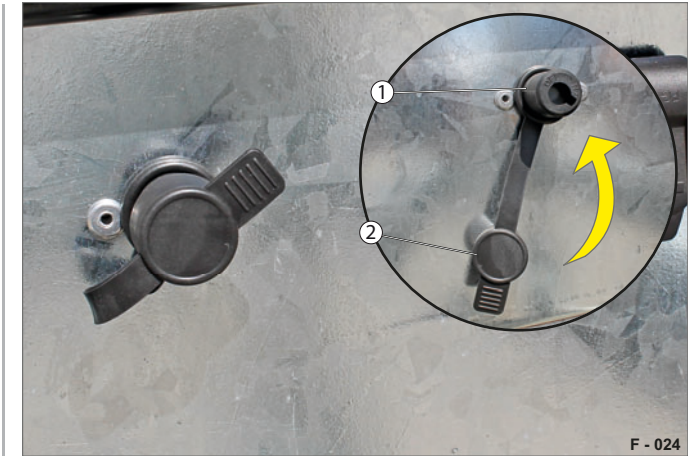


Fig. 22 Plug-in switch socket with covering cap

- 1 Plug-in switch socket
- 2 Covering cap

- ▶ Place the covering cap (Fig. 22 /2) on the plug-in switch socket (Fig. 22 /1).



Fig. 23 Insert the hand button

- 1 Hand button
- 2 Holder

► Insert the hand button (Fig. 23 /1) tightly in the holder (Fig. 23 /2) - cable pointing downwards.

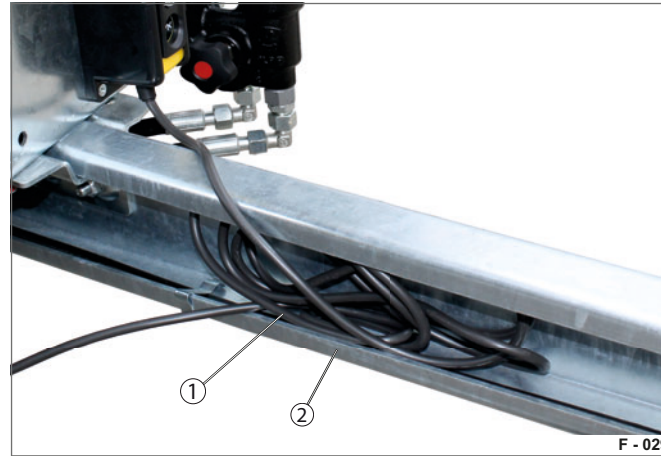


Fig. 24 Cable stowed away

- 1 Cable
- 2 V drawbar



WARNING

Loose cable

The cable could come loose while driving and fall on the road - accident risk!

► Before setting off, make sure that the cable is securely in place on the V drawbar and secured.

► Securely stow away the hand button cable (Fig. 24 /1) in the inside of the V drawbar (Fig. 24 /2).

► Secure the cable with auxiliary means if required e.g. hook-and-loop tape.

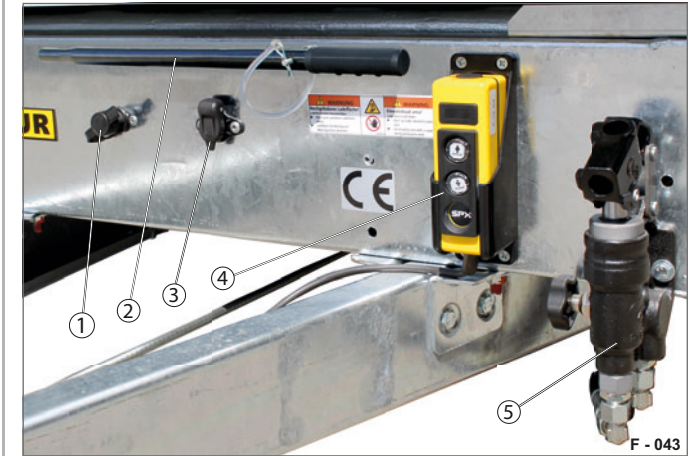
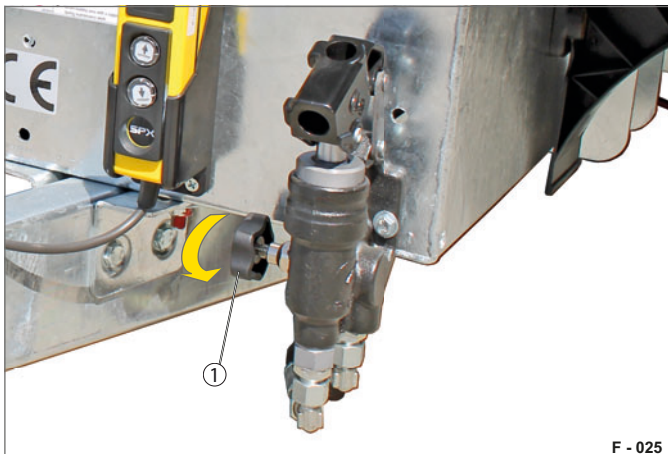


Fig. 25 Position for driving

- 1 Plug-in switch socket, closed
- 2 Pump lever, secured
- 3 Charging plug (12V), closed
- 4 Hand button, secured
- 5 Manual emergency pump

► Insert the hand button (Fig. 25 /4) tightly in the holder (Fig. 23 /2).

Manual emergency pump

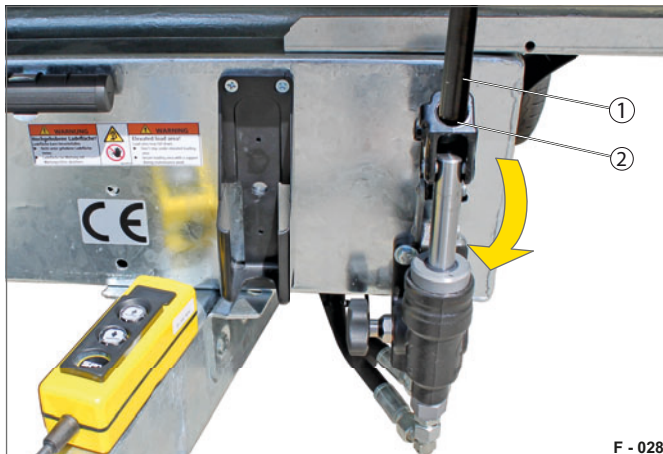


F - 025

Fig. 26 Close the emergency hand pump valve

- 1 Valve wheel

► Turn / close the valve wheel (Fig. 26 /1) by turning it in a clockwise direction.

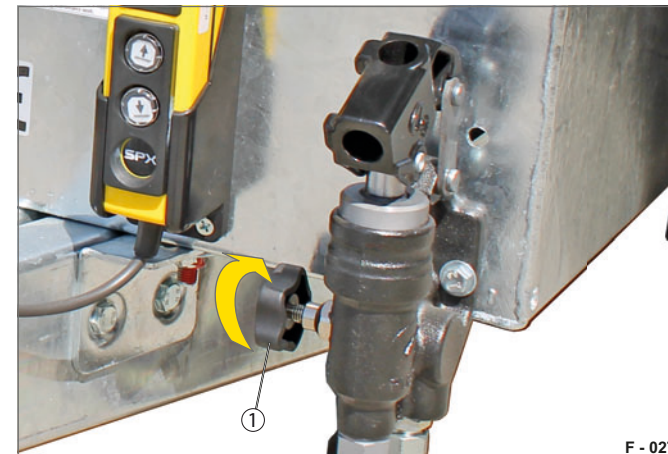


F - 028

Fig. 27 Tipping the cargo bed

- 1 Pump lever
- 2 Insertion opening

► Remove the pump lever (Fig. 27 /1) from the holder.
 ► Move the pump lever in the insertion opening (Fig. 27 /2) (cf. tipping with the manual pump).
 ► Continue until the cargo bed has moved to the desired position.
 The cargo bed has been tipped.



F - 027

Fig. 28 Open valve wheel

- 1 Valve wheel

► Press the pump lever down so that the pump piston is retracted.
 ► Slowly turn / open the valve wheel (Fig. 28 /1) in an anticlockwise direction.
 The cargo bed will slowly lower into its original position.
 ► Monitor the behaviour of the trailer while the cargo bed is tilting back.
 The tilting back process is interrupted / stopped by closing the valve wheel.
 ► Make sure that the loading bridge is secured in the tilting bearings before driving off.

Towing connection (option)

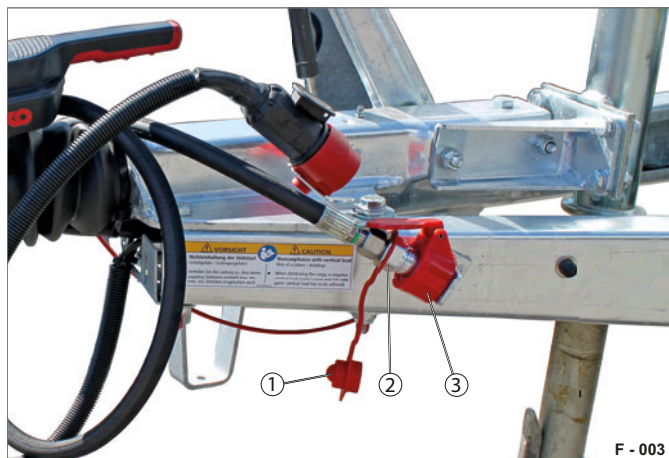


Fig. 29 Hydraulic connection for tractors

- 1 Sealing cap
- 2 Hydraulic connection for tractors (SVK BG3)
- 3 Tractor parking socket

The hydraulic connection for tractors is a hydraulic connection for the towing vehicle. This connection enables the hydraulic system of the towing vehicle to be used for the hydraulic functions of the trailer.

In this respect, the HTK is operated from the traction unit. The connection has a two-way cock which enables the hydraulic circuit of the towing vehicle and the hydraulic circuit of the manual pump / electric hydraulic pump of the trailer to be switched.

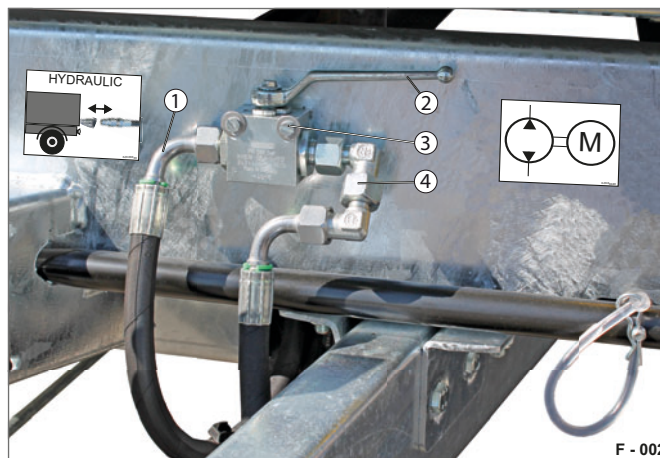


Fig. 30 Change-over of the hydraulic supply

- 1 Hydraulic circuit of the towing vehicle
- 2 Manual operation
- 3 Two-way cock
- 4 Hydraulic circuit of the electric hydraulic pump



**WARNING****Excessive hydraulic operating pressure**

The hydraulic lines could burst as a result of excess pressure and the hydraulic oil squirting out may penetrate the skin.

- ▶ Check the condition of the hydraulic line before connecting it to the traction unit.
- ▶ Make sure that the operating pressure of the hydraulic unit has been adjusted to the operating pressure of the trailer - the operating pressure may have to be restricted.
- ▶ Take note of the hydraulic systems sticker on the trailer.

HYDRAULIC-SYSTEM / Cylinder

Technische Daten / Technical Data:

$p_{\max.}$	= 180 bar
	= 10,0 l (dm ³)
	= -30 ... + 100 °C

620.00437

Fig. 31 Sticker on the trailer

- 1 Max. oil pressure ($P_{\max.}$): 180 bar
- 2 Max. oil quantity: 10 l
- 3 Operating temperature: -30 °C / + 100 °C



Take note of the instruction manual of the traction unit with regard to the hydraulic supply of the trailer.



The hydraulic system of the traction unit must be filled with the requisite quantity of oil and may not exceed the max. permissible operating pressure.

Connecting the tractor connection

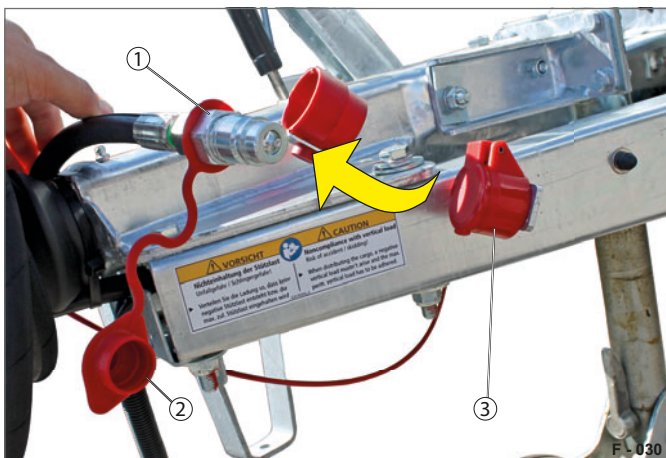


Fig. 32 Hydraulic line, connection

- 1 Line connection
- 2 Sealing cap
- 3 Tractor parking socket

- ▶ Remove the line connection (Fig. 32 /1) from the tractor parking socket (Fig. 32 /3) and remove the sealing cap (Fig. 32 /2).
- ▶ If required, clean the line connection with a clean cloth.
- ▶ If required, check the hydraulic oil level of your traction unit.
- ▶ Insert the line connection in the connection socket of the traction unit.

Change-over of the hydraulic supply

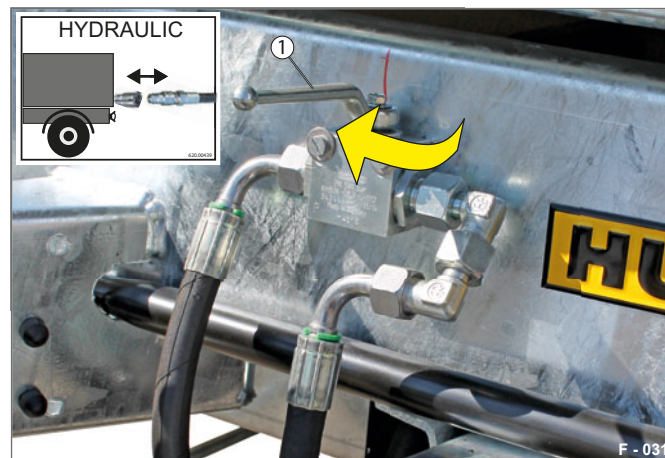


Fig. 33 Change-over of the hydraulic supply

- 1 Lever position: for traction unit

- ▶ Turn the lever (Fig. 33 /1) away from the chassis in a clockwise direction.
The lever has been switched for supply from the traction unit.
The pressure is built up by starting the towing vehicle.

Towing connection - Tipping the cargo bed



Fig. 34 Cargo bed tipped

- The cargo bed is controlled from the operating unit on the towing vehicle.
- ▶ Before tipping the cargo bed, ensure that the trailer is coupled to the traction unit and secured so that it cannot roll away.
 - ▶ Ensure that the tilting bearings have been correctly pinned in required position / for the required tipping process and secured.

Towing connection - Tilting the cargo bed back



F - 059

Fig. 35 Tilting the cargo bed back

The cargo bed is controlled from the operating unit on the traction unit.

- ▶ Tilt the cargo bed back to the driving position.
- ▶ Shut down / switch off the traction unit.
- ▶ Place the lever in the manual pump / electric hydraulic pump position.

The circuit to the tractor unit has been disconnected.

Uncoupling



F - 034

Fig. 36 Hydraulic line, parking

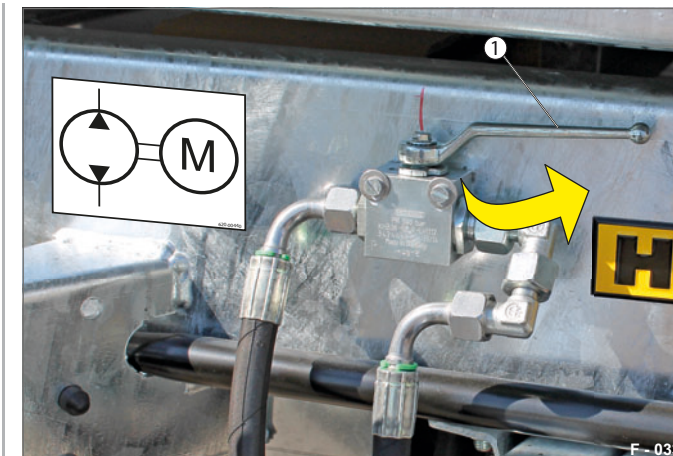
- 1 Line connection
- 2 Cover flap
- 3 Tractor parking socket



The line may not be under pressure when it is uncoupled.

- ▶ Remove the line connection (Fig. 36 /1) from the connection socket of the traction unit.
- ▶ Open the sealing cap (Fig. 36 /2) and insert the line connection in the tractor parking socket (Fig. 36 /3). The line connection is prevented from falling out by the cover flap.

Switching between the circuits



F - 033

Fig. 37 Change-over to the electric hydraulic pump

- 1 Lever position: for electric hydraulic pump



Change-over is only possible if the cargo bed is in the driving position (down).

- ▶ Ensure that the cargo bed has been tilted back.
- ▶ Turn the lever (Fig. 37 /1) towards the chassis in an anti-clockwise direction. The lever has been set to supply from the manual pump / electric hydraulic pump.

Securing the cargo bed

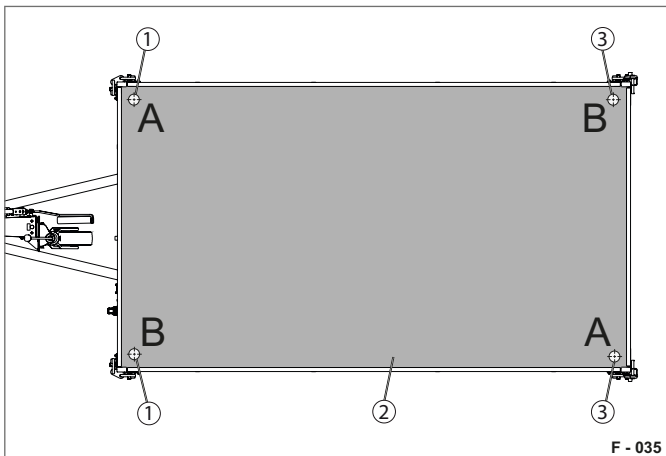


Fig. 38 Tilting bearings of the cargo bed

- 1 Tilting bearing, front
- 2 Cargo bed
- 3 Tilting bearing, rear



The cargo bed must rest completely on the trailer frame before repositioning the pins of the tilting bearings!

The cargo bed is mounted on bearings at 4 corners.

The cargo bed can be tipped to the rear or to each side (right or left).

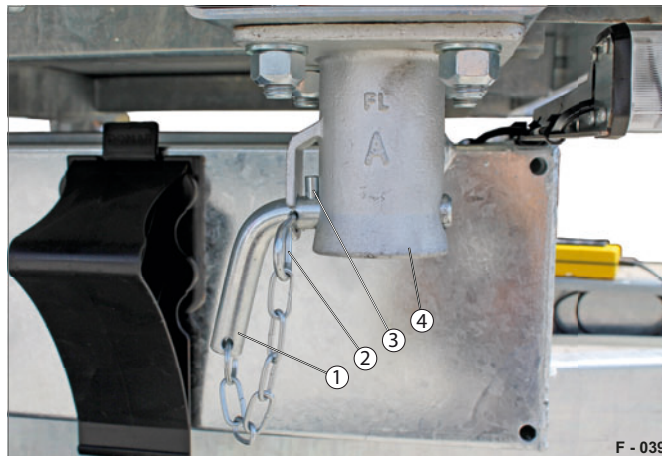


Fig. 39 Tilting bearing secured

- 1 Plug pins
- 2 R-clip
- 3 Pin
- 4 Tilting bearings

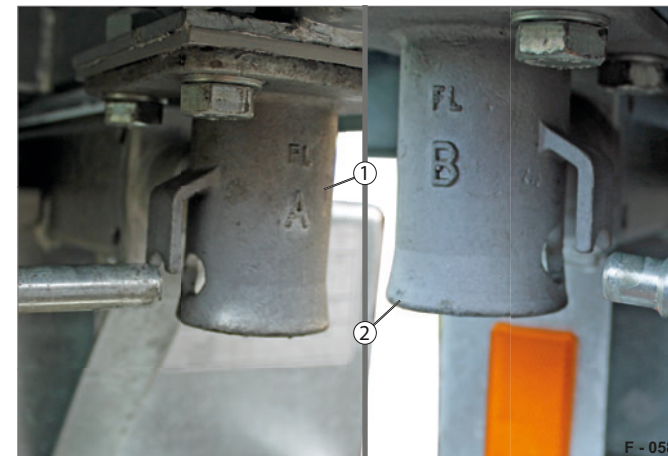
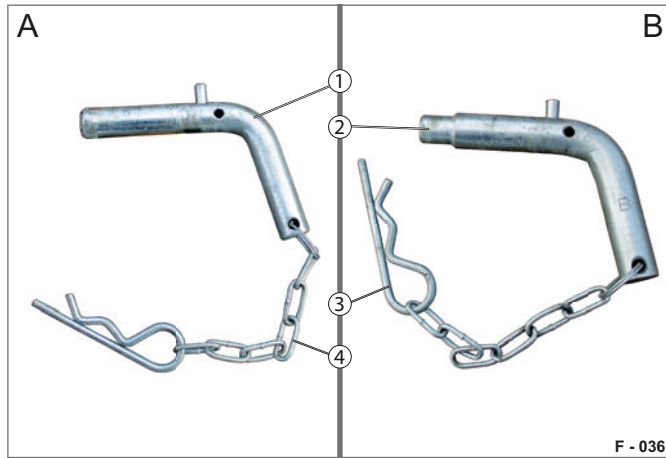


Fig. 40 Tilting bearing variant A & B

- 1 Tilting bearing A
- 2 Tilting bearing B



F - 036

Fig. 41 Plug pin version

- 1 Plug pin variant A
- 2 Plug pin variant B, with shoulder
- 3 R-clip
- 4 Chain



The cargo bed may never be diagonally secured in tilting bearings!

Only the original plug pins may be used for securing!

The plug pins are available in two executions.

The tilting bearings have various drill holes (tilting bearings A & B).

Diagonal securing of the cargo bed is thereby excluded.

Setting / securing tilting bearings

Tipping to the rear:

The tilting bearings at the rear must be pinned.

Tipping to the right in the direction of travel:

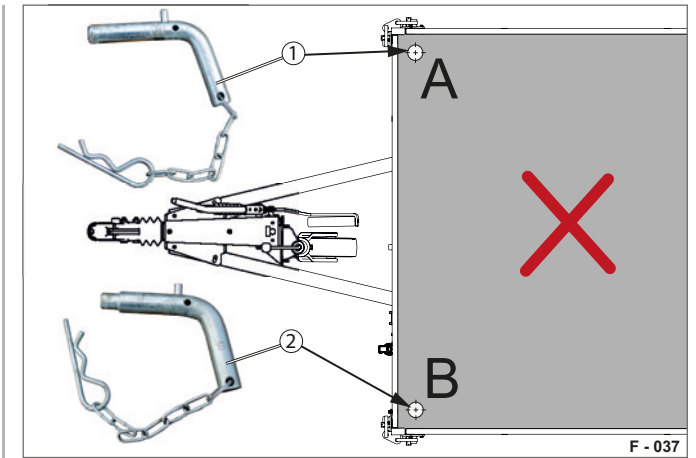
The tilting bearings on the right in the direction of travel must be pinned.

Tipping to the left in the direction of travel:

The tilting bearings on the left in the direction of travel must be pinned.

The cargo bed must be lowered completely before changing over. In this regard, turn the valve on the manual / emergency hand pump anti-clockwise until it cannot be turned any more.

In order to determine the tip direction, go to the corner where the tilting bearing is to be released.



F - 037

Fig. 42 Tilting bearing - pinned at the front

- 1 Plug pin variant A
- 2 Plug pin variant B, with shoulder

WARNING



Tipping the cargo bed to the front

The load slides to the front. The cargo bed / drop side / chassis is deformed
- crushing / impact risk!

- ▶ Do not tip the cargo bed to the front - both plug pins may not be attached at the front.

Releasing

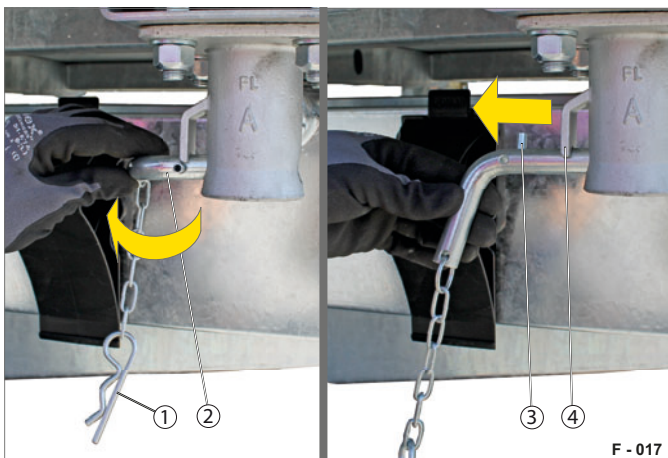


Fig. 43 Releasing the tilting bearings

- 1 R-clip
- 2 Plug pins
- 3 Pin
- 4 Locking strap

- ▶ Remove the R-clip (Fig. 43 /1).
- ▶ Turn the plug pin (Fig. 43 /2), so that the pin (Fig. 43 /3) comes out of the locking strap (Fig. 43 /4).
- ▶ Remove the plug pin completely.

Insertion

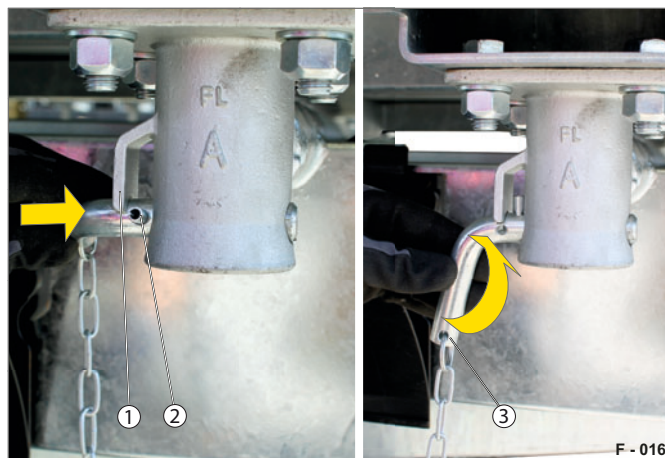


Fig. 44 Inserting the plug pin

- 1 Locking strap
- 2 Pin
- 3 Plug pins

- ▶ Insert the plug pin (Fig. 44 /3) all the way in.
- ▶ Turn and push the plug pin in further, so that the pin (Fig. 44 /2) engages behind the locking strap (Fig. 44 /1).

Securing



Fig. 45 Plug pin secured

- 1 R-clip

- ▶ Insert the R-clip (Fig. 45 /1) through the hole of the plug pin.
- The plug pin is secured against falling out.

Pinning for tipping to the rear

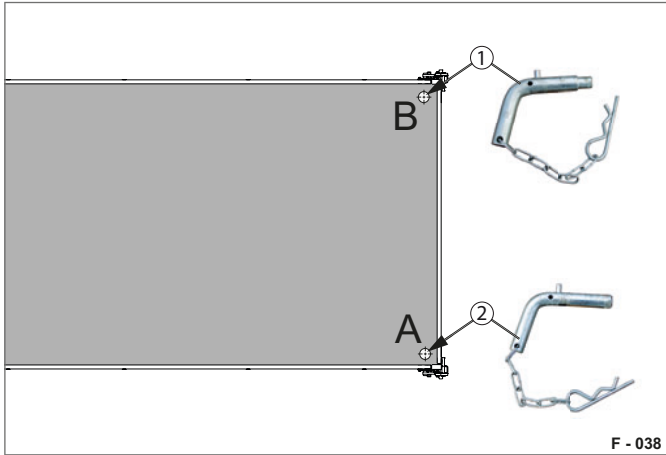


Fig. 46 Plug pins inserted at the rear

- 1 Plug pin B, with shoulder
- 2 Plug pin A

► Insert and secure the plug pins (Fig. 46 /1 & Fig. 46 /2) in the rear tilting bearings.
The front tilting bearings are free.

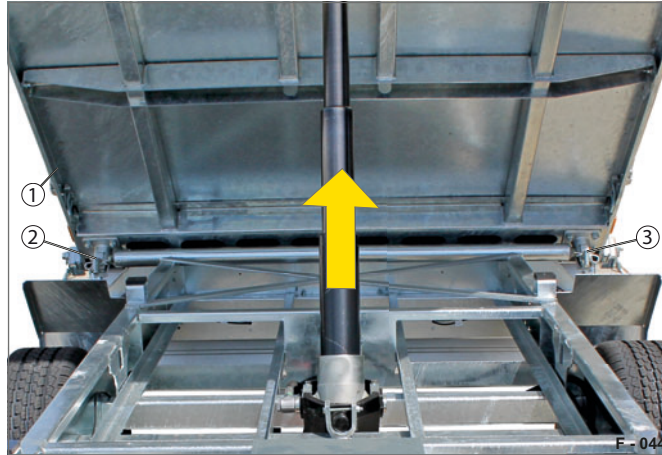


Fig. 47 Tip the cargo bed to the rear

- 1 Loading bridge raised
- 2 Plug pin B, inserted
- 3 Plug pin A, inserted



Follow all the safety procedures for loading / unloading the trailer.
See the Operation section from page 22.

► Unlock and open the rear drop side (Fig. 48 /2).

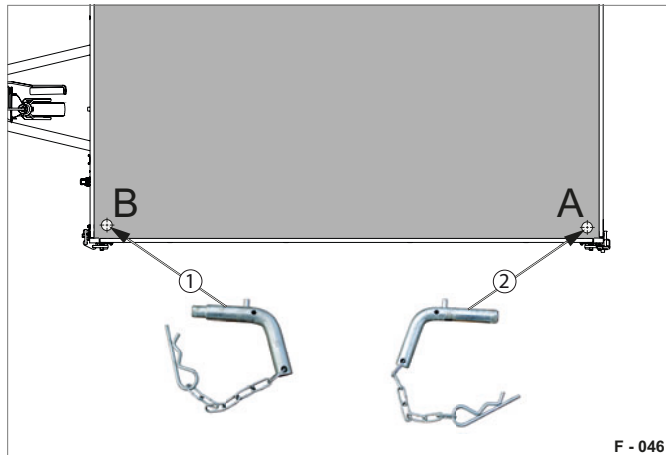


Fig. 48 Cargo bed fully tipped

- 1 Cargo bed fully raised
- 2 Rear drop side folded down

► The cargo bed (Fig. 48 /1) can be tipped at the rear by means of the hydraulic system (see page 38).

Pinning for tipping to the side



F - 046

Fig. 49 Plug pin inserted on the left in the direction of travel

- 1 Plug pin B
- 2 Plug pin A, with shoulder

► Insert and secure the plug pins (Fig. 49 /1 & Fig. 49 /2) on the left-hand side of the trailer.

The tilting bearings on the right-hand side of the trailer are free.



F - 047

Fig. 50 Cargo bed tipped to the side

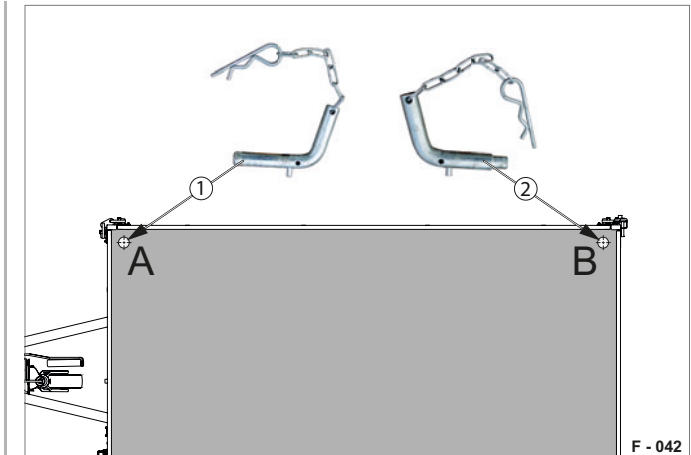
- 1 Cargo bed raised
- 2 Plug pin A, inserted
- 3 Plug pin B, inserted



Follow all the safety procedures for loading / unloading the trailer.

See the Operation section from page 22.

- Fold down the respective side drop side.
- The cargo bed can be tipped at the side by means of the hydraulic system (see page 38).



F - 042

Fig. 51 Plug pin inserted on the right in the direction of travel

- 1 Plug pin A
- 2 Plug pin B, with shoulder

► Insert and secure the plug pins (Fig. 51 /1 & Fig. 51 /2) on the right-hand side of the trailer.

The tilting bearings on the left-hand side of the trailer are free.

Operating the telescopic prop stands

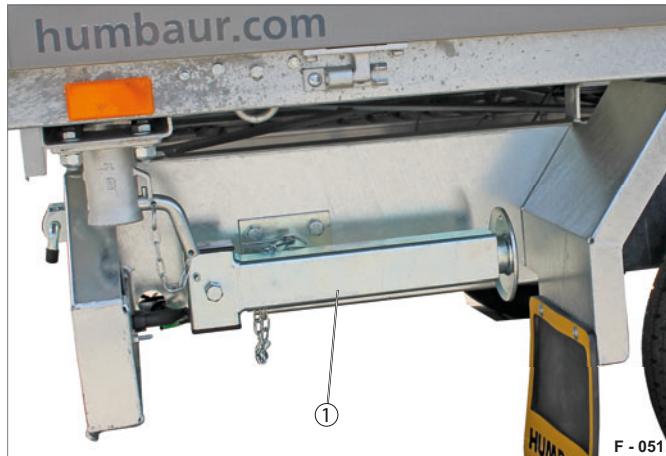


Fig. 52 Position for driving

1 Telescopic prop stand

The telescopic prop stands are mounted at the rear of the trailer.



Follow all the safety procedures for loading / unloading the trailer.

The telescopic prop stands must be folded up and secured before driving off.

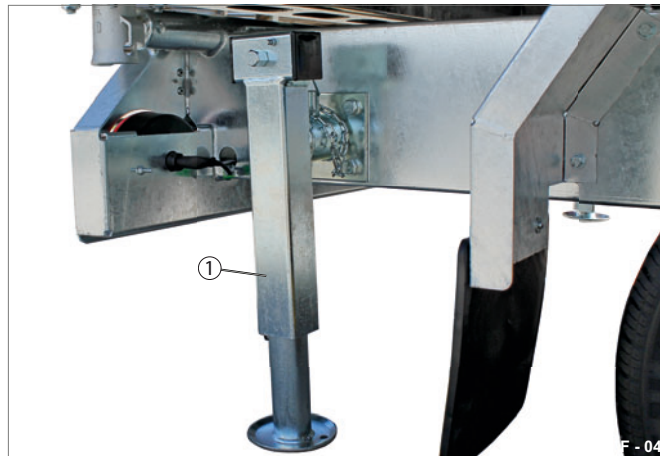


Fig. 53 Support position

1 Telescopic prop stand

The telescopic prop stands stabilise your trailer when loading / unloading vehicles.

The telescopic prop stands are operated with a crank handle.

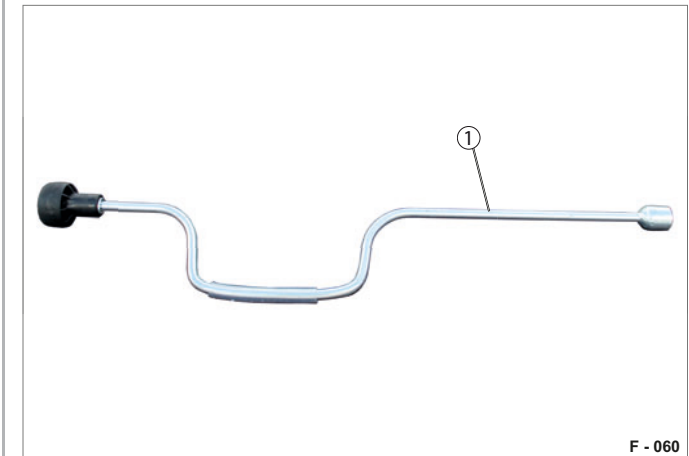


Fig. 54 Operating element

1 Crank handle

The crank handle is required for operation of the telescopic prop stands.



The operator is responsible for the safe transport / availability of the crank handle.

The crank handle can be ordered as an accessory if it is lost.

WARNING



Sinking support legs

The support legs could sink in on a soft / yielding surface.

The trailer can tip over - risk of crushing!

- ▶ Ensure that the surface is strong enough (firm).
- ▶ Use a stable support if the surface is soft / yielding.

WARNING



Driving with the telescopic prop stands in the support position

The telescopic prop stands could make contact with the road while driving and be torn off - risk of accidents!

- ▶ Before setting off, make sure that the telescopic prop stands have been retracted and secured.

WARNING



Loading / unloading without lowering the telescopic prop stands

Loading / unloading without lowering the telescopic prop stands can cause a loss of stability.

The trailer can tip over - risk of crushing!

- ▶ Swivel the telescopic prop stands down before loading / unloading.
- ▶ Before setting off, make sure that the telescopic prop stands have been secured with plug pins.

CAUTION



Working under the trailer

You can hit your head.

- ▶ Avoid jerky movements.
- ▶ Only operate the telescopic prop stands with the drop sides closed.

CAUTION



Operating the telescopic prop stands

You can crush your fingers / hands between the chassis and telescopic prop stands.

- ▶ Operate the telescopic prop stands carefully and in a controlled manner - do not allow them to drop down.



- ▶ Use



- ▶ Keep your feet away from the crush area when lowering the telescopic prop stands.
- ▶ Only operate the telescopic prop stands when the trailer is at standstill.

NOTICE

Uneven support of the trailer!

Uneven support of the trailer could overload the telescopic prop stands on one side and cause defects.

- ▶ Wind the telescopic prop stands down evenly.
- ▶ Ensure that the trailer is not standing at an angle.

NOTICE

Manoeuvring / driving off with the telescopic prop stands lowered!

Telescopic prop stands could be deformed and the trailer damaged if they are lowered when manoeuvring / driving off.

- ▶ Always wind up / swivel in the telescopic prop stands before setting off.

Lowering into the support position

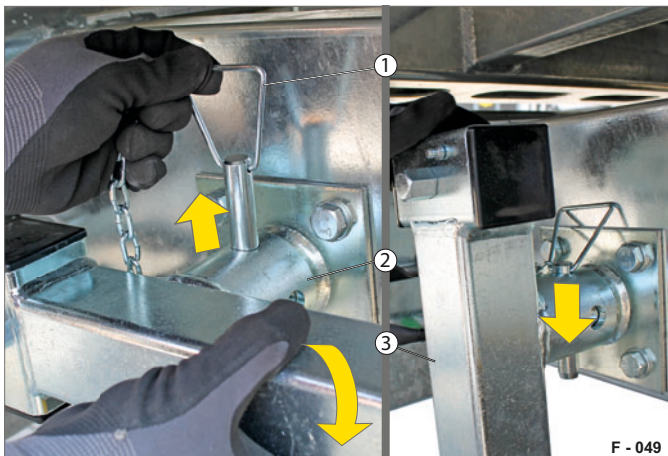


Fig. 55 Changing the position

- 1 Plug pins
- 2 Fixing attachment
- 3 Telescopic prop stand

- ▶ Hold the telescopic prop stands (Fig. 55 /3) tightly with one hand.
- ▶ Remove the plug pin (Fig. 55 /1) completely.
- ▶ Carefully swivel the telescopic prop stand down (90°) until the plug pin can be inserted in the next free hole.
- ▶ Insert the plug pin all the way through the fixing attachment (Fig. 55 /2) from above.
- ▶ Check the locking.

Winding down



Fig. 56 Winding down

- 1 Crank handle
- 2 Crank base
- 3 Stand body
- 4 Adjustable support

- ▶ Insert the crank handle (Fig. 56 /1) in the crank base (Fig. 56 /2).

For loading

- ▶ Wind down until there is an air gap ~ 5 cm between the base surface and adjustable support (Fig. 56 /4).

For unloading

- ▶ Wind down until the adjustable support reaches the base surface.
- ▶ Remove the crank handle and stow it away securely.

Support position for loading



Fig. 57 Adjustable supports lowered

- 1 Air gap / distance to base surface (approx. 5 cm)

- ▶ After winding the telescopic prop stands down, ensure that there is an air gap (Fig. 57 /1) between the base surface and adjustable foot.
When loading a trailer, the chassis will load the suspension via the axle springing and set the telescopic prop stands down on the base surface.

When unloading a vehicle, the adjustable feet must be placed directly on the base surface - an air gap is not required.

Winding up



Fig. 58 Winding up

- 1 Crank handle
- 2 Crank base
- 3 Adjustable support

- ▶ Insert the crank handle (Fig. 58 /1) into the crank base (Fig. 58 /2).
- ▶ Wind up the adjustable support (Fig. 58 /3) to the full extent.
- ▶ Remove the crank handle and stow it away securely.

Retracting to the driving position

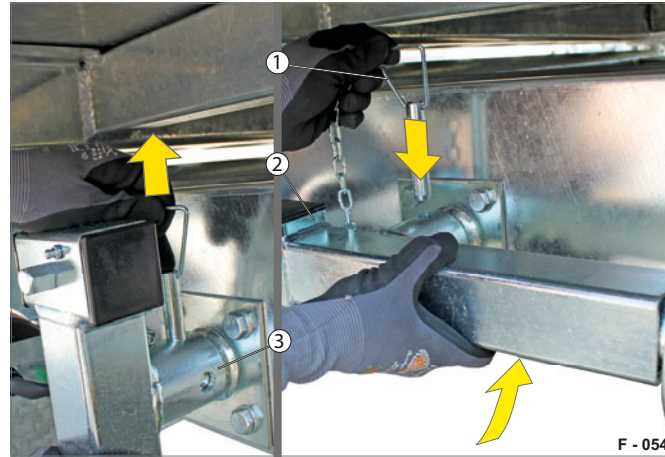


Fig. 59 Swivelling back

- 1 Plug pins
- 2 Telescopic prop stand
- 3 Fixing attachment

- ▶ Pull out the plug pin (Fig. 59 /1).
- ▶ Carefully swivel the telescopic prop stand (Fig. 59 /2) upwards.
- ▶ Insert the plug pin all the way in from above.

Position for driving



Fig. 60 Telescopic prop stands in the driving position

- ▶ Before setting off, make sure that the telescopic prop stands have been retracted to the full extent and secured.

Toolbox

A lockable toolbox is available as an option.

The toolbox is located on the front of the chassis on the right in the direction of travel.

The toolbox is used for stowing away lashing straps, tools, cleaning equipment, etc.

The toolbox is not waterproof.



WARNING

Unlocked toolbox

Objects could fall out while driving.

The lid could be torn off - risk of accidents!

- ▶ Check that the toolbox is closed and secured before driving off.
- ▶ Lock the toolbox to prevent unauthorised access.

Opening the toolbox

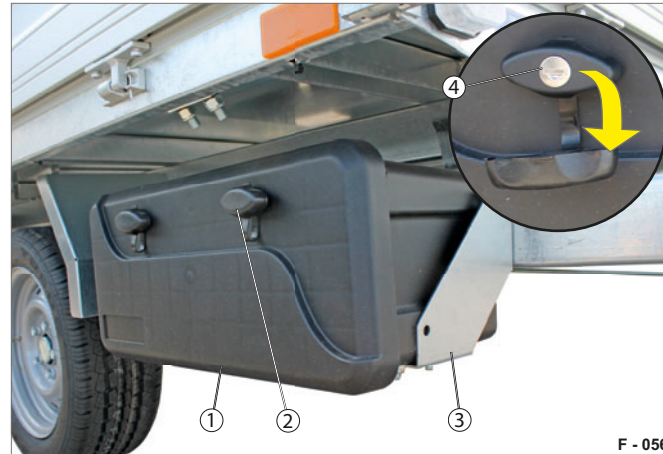


Fig. 61 Toolbox locked

- 1 Lid
- 2 Cover
- 3 Fastening bracket
- 4 Lock with lock cylinder



Please note the specified surface loading (see manufacturer's specification on the inside of the lid, approx. 30 kg).

- ▶ Fold down the covers (Fig. 61 /2) of the lock cylinders (Fig. 61 /4).
- ▶ If required, use a key (Fig. 62 /1) to open the locks (Fig. 61 /4).
- ▶ Open the locks by turning.
- ▶ Fold down the lid.
- ▶ Watch out for falling objects when opening the lid.

Closing the toolbox



Fig. 62 Toolbox open

- 1 Key
- 2 Toolbox
- 3 Lid

- ▶ Fold the lid (Fig. 62 /3) upwards.
- ▶ Close the locks by turning.
- ▶ If required, use the key (Fig. 62 /1) to lock the toolbox. The lid is locked.
- ▶ Close the cover (Fig. 61 /2). The toolbox has been locked and secured.

Spare wheel holder

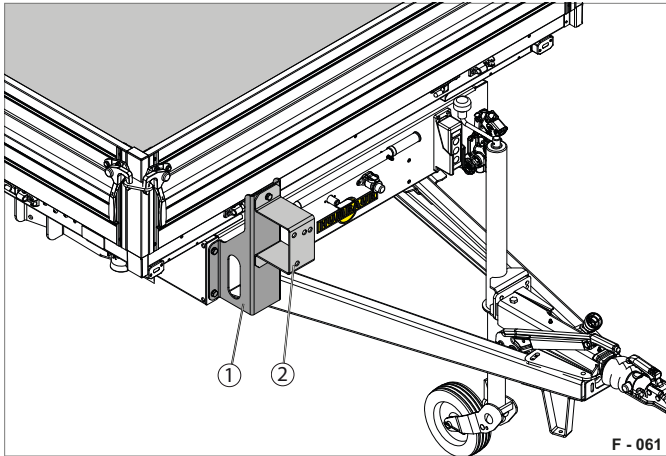


Fig. 63 Spare wheel holder mounted

- 1 Bracket
- 2 Spare wheel holder

A spare wheel holder (Fig. 63) is available as an option. Defective wheels can be quickly changed in the case of a breakdown, in order to continue the journey.

The spare wheel holder is mounted on a bracket (Fig. 63 / 1) with a spare wheel holder (Fig. 63 /2) which is located on the front of the chassis on the right in the direction of travel.

A spare wheel may only be retrofitted at the provided attachment points.

- ▶ Do not drill any additional holes in the chassis / drawbar.

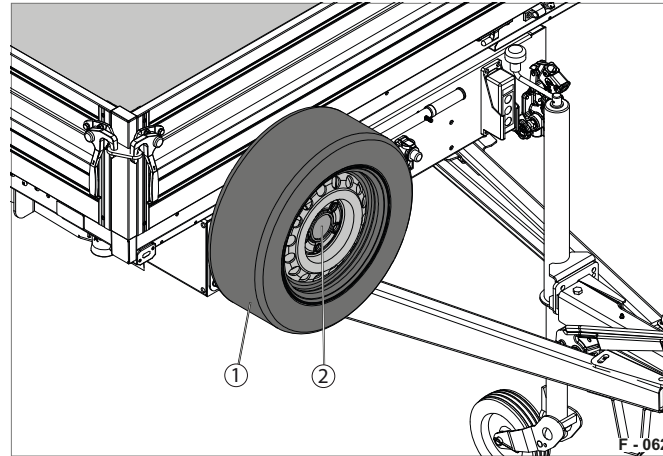


Fig. 64 Spare wheel holder with spare wheel

- 1 Spare wheel
- 2 Spare wheel holder with wheel bolts

The spare wheel holder (Fig. 63) may only be used to attach and carry a spare wheel (Fig. 64 /1).

- ▶ Do not tie down a load on the spare wheel holder.

Carrying a spare wheel at the front of the trailer increases the drawbar load.

- ▶ Before driving off, make sure that the max. drawbar load is not exceeded.
- ▶ Carefully place the defective wheel on the wheel bolts of the spare wheel holder (Fig. 64 /2).
- ▶ Screw the wheel on tightly with the spherical collar nuts.
- ▶ Do not exceed a tightening torque of 80 Nm.
- ▶ Check the air pressure of the spare wheel at regular intervals.
- ▶ Check the secure attachment of the spare wheel (max. 80 Nm) at regular intervals.

NOTICE

Tightening up spare wheel nuts too tightly

The wheel rim could be deformed.

- ▶ Tighten the spare wheel nuts to a maximum of 80 Nm.



The spare wheel, spare wheel holder and securing elements must be properly secured against loss. Spare wheels transported loose (on the cargo bed) must be securely tied down.



5

Load securing / Operating the body

The body mainly consists of:

- Drop sides, side
- Rear drop side
- Front drop side
- Loading ramps
- Tie-down brackets / lashing rings
- Drop side extension (optional)
- Steel mesh extension (optional)
- Aluminium extension (optional)
- H-frame (optional)
- Tarpaulin cover / frame (optional)
- Flat cover (optional)
- Cover net (optional)

WARNING



Climbing on the body

The body does not provide sufficient stability for people.

The components of the body could give way or break - Falling hazard!

- ▶ Do not use the components of the body as a ladder.
- ▶ Use a stable ladder for carrying out work on the body.



WARNING



Objects on the trailer!

Ice, snow, branches and other objects could fall from the body / cargo bed while driving - risk of accidents!

- ▶ Before setting off, make sure that there are no pools of water, ice, snow, branches or other objects on the body / cargo bed. Remove these if required.
- ▶ Use a stable ladder where required.



WARNING



Unsecured / slipped load

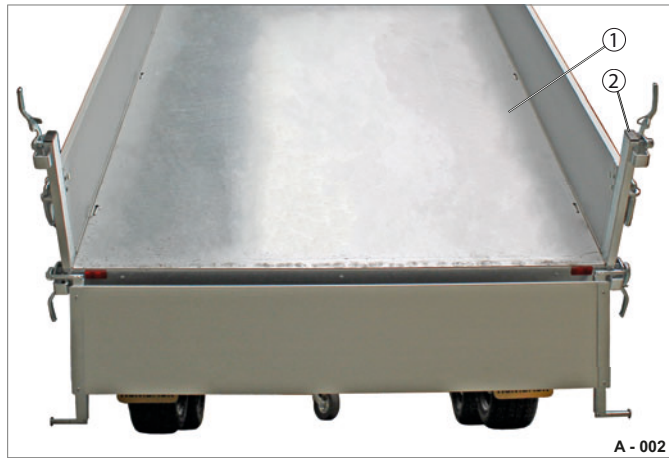
The load can fall off the trailer when opening the tensioning elements - crushing / impact risk!

- ▶ Ensure that the load is upright and has not slipped.
- ▶ Open the tensioning elements carefully and secure an unsecured load which has slipped.
- ▶ Open body locking mechanisms from a position outside the swivelling ranges of the body components (drop sides).



Fig. 1 Body components (steel version)

- 1 Drop side, front end / fixed
- 2 Drop side, lateral right and left / folding
- 3 Rear drop side, swingable / folding
- 4 Locks of the swinging interlock
- 5 Folding fasteners
- 6 Ramp slot with loading ramps



A - 002

Fig. 2 Body components (aluminium version)

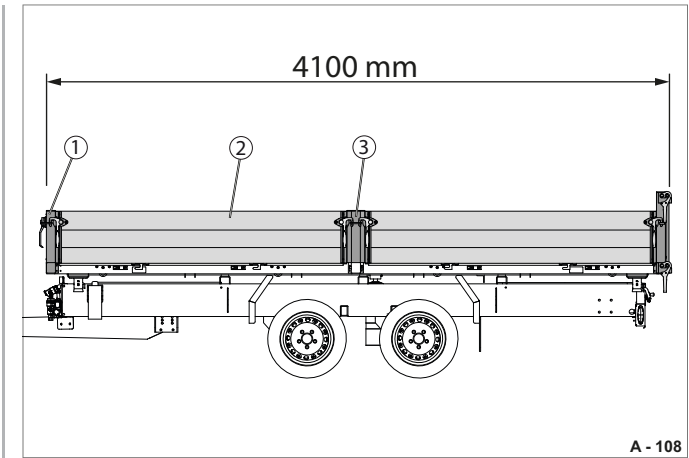
- 1 Cargo bed / loading platform, steel
- 2 Stanchion



A - 003

Fig. 3 Body components

- 1 Drop side hinge
- 2 Tie-down bracket, retractable



A - 108

Fig. 4 HTK 41 (aluminium drop side)

- 1 Stanchion
- 2 Two-part drop side
- 3 Centre stanchion

Opening and closing drop sides / locks

The drop sides enable form-fitting load securing.



Driving with unlocked or partly removed drop sides is not permitted by law.



Drop sides are heavy!

Fitting / removal of the drop sides requires 2 persons.

Note / comply with the following without fail when handling:

- Stand to one side of the drop side before unlocking the angle lever locks
- Only open or close the drop sides if the cargo bed is horizontal.
- Unlock the angle lever locks in turn and hold the drop side tightly at the same time.



DANGER

Driving with open drop sides

People may be caught and dragged along.

The load could fall off - accident risk!

- ▶ Before setting off, make sure that all drop sides have been closed, inserted and secured.



WARNING

Driving with partly removed drop sides

The drop sides cannot be secured - accident risk!

- ▶ Only drive with all the drop sides attached or with the drop sides completely removed.



WARNING



Unsecured angle lever locks!

The drop side could open while driving – accident risk!

- ▶ Check that all angle lever locks are secured with locking springs before driving off.



CAUTION



Opening and closing drop sides and locks

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



- ▶ Use .
- ▶ Fold the drop sides down in a controlled way - do not allow them to fall down.
- ▶ Do not touch a drop side you intend to latch directly in the area where the drop side stanchions / locks are.
- ▶ Close the hand lever with a flat hand.



CAUTION



Drop sides under pressure from a load

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

- ▶ Check to make sure that the goods are not pressing against the drop side before unlatching the drop side locks.
- ▶ If required, reposition the load beforehand.
- ▶ Stand to the side when opening the drop side - outside the swinging range.



CAUTION



Removed drop sides

Removed drop sides could become an obstacle - trip hazard!

- ▶ Do not place removed drop sides directly in the area required for loading and unloading.
- ▶ Lay the drop sides flat on the ground - do not place them on end.

Operating the angle lever lock, variant 1



Fig. 5 Angle lever lock

- 1 Hook
- 2 Eyelet
- 3 Locking spring
- 4 Lever

The angle lever locks of variant 1 secure the lateral and the front drop side

Unlocking

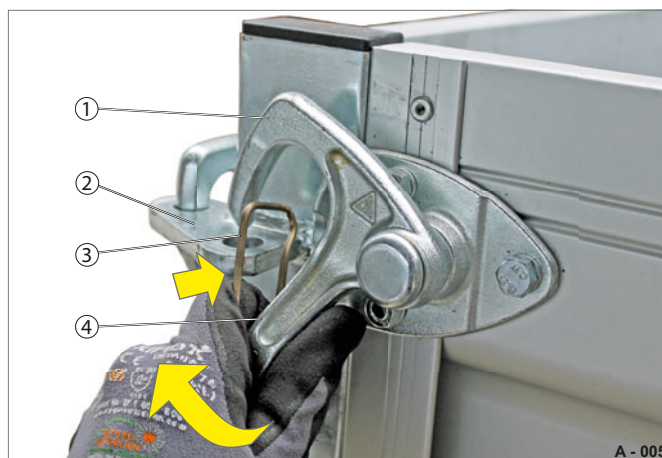


Fig. 6 Unlocking the angle lever lock

- 1 Hook
- 2 Eyelet
- 3 Locking spring
- 4 Lever

- ▶ Unlock the angle lever lock.
 - Push in the locking spring (Fig. 6 /3) while turning the lever (Fig. 6 /4) at the same time.
 - The hook (Fig. 6 /1) is released.

Locking

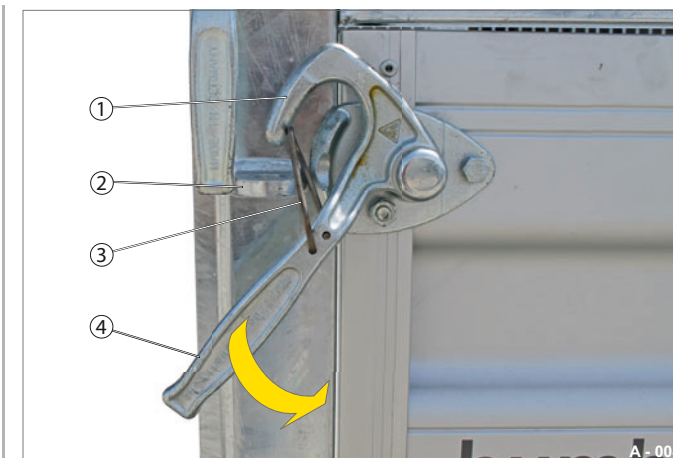


Fig. 7 Locking the angle lever lock

- 1 Hook
- 2 Eyelet
- 3 Locking spring
- 4 Lever

- ▶ Close the angle lever locks in turn.
 - Turn the lever (Fig. 7 /4) until the hook (Fig. 7 /1) engages in the eyelet (Fig. 7 /2) and the locking spring (Fig. 7 /3) snaps into place.
 - The drop side has been secured against unintentional opening while driving.

Operating the angle lever lock, variant 2

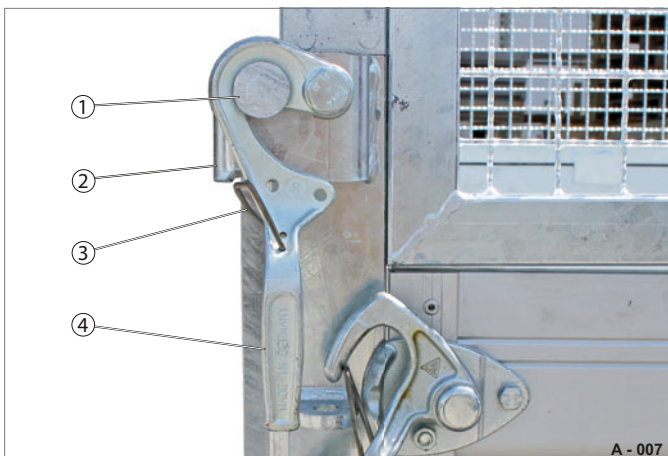


Fig. 8 Angle lever lock locked

- 1 Pivot
- 2 Catch
- 3 Locking spring
- 4 Lever

Unlocking

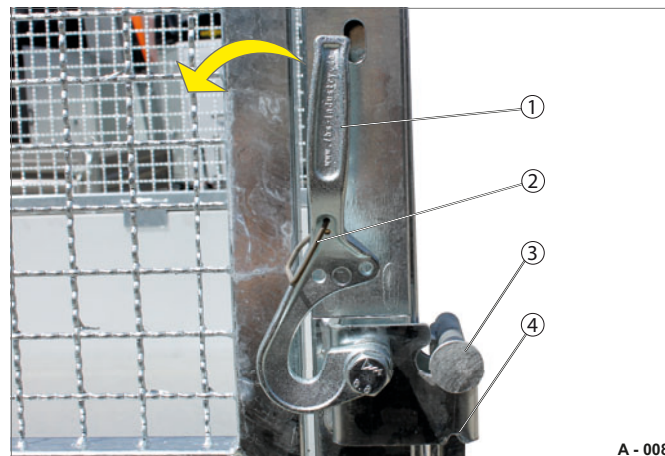


Fig. 9 Angle lever lock released

- 1 Lever
- 2 Locking spring
- 3 Pivot
- 4 Safety notch

- ▶ Unlock the angle lever lock.
 - Press the lever (Fig. 9 /1) in the CLOSED direction until the locking spring (Fig. 9 /2) has been relieved.
 - Remove the locking spring from the safety notch (Fig. 9 /4) while turning the lever to the completely open position.
 The pivot (Fig. 9 /3) is released.

Locking

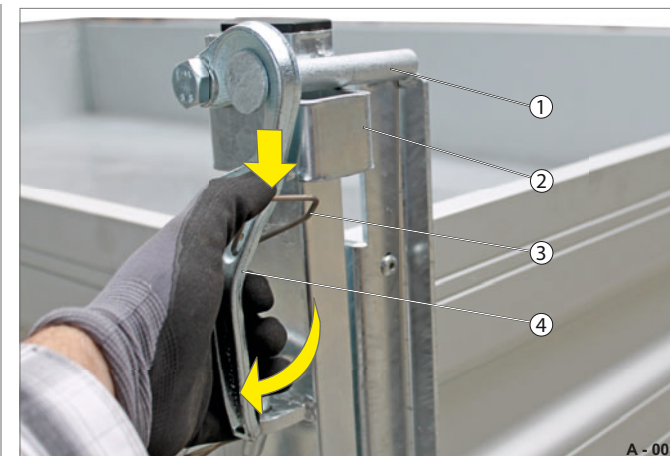


Fig. 10 Locking the angle lever lock

- 1 Pivot
- 2 Catch
- 3 Locking spring
- 4 Lever

- ▶ Close the angle lever locks in turn. Turn the lever (Fig. 10 /4) as far as it will go. The locking spring (Fig. 10 /3) must snap into the safety notch (Fig. 9 /4). The drop side has been secured against unintentional opening while driving.

Handling the front drop side



Fig. 11 Front drop side closed

- 1 Front drop side
- 2 Angle lever lock

The front drop side (Fig. 11 /1) can be folded down and removed.

The front drop side enables form-fitting load securing.

**WARNING****Driving with the front drop side folded down**

The front drop side could detach from the drop side hinges and fall down while driving - accident risk!

- ▶ Make sure that the front drop side is closed and secured or has been removed before driving off.

Folding down

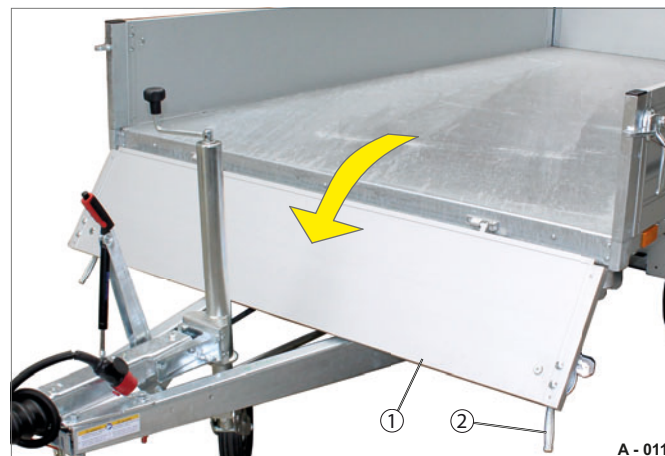


Fig. 12 Front drop side open

- 1 Front drop side
- 2 Angle lever lock

- ▶ Release the angle lever lock (Fig. 12 /2), variant 1 (See "Unlocking" on page 61.).
- ▶ Carefully fold down the front drop side (Fig. 12 /2) in a controlled manner.

Closing

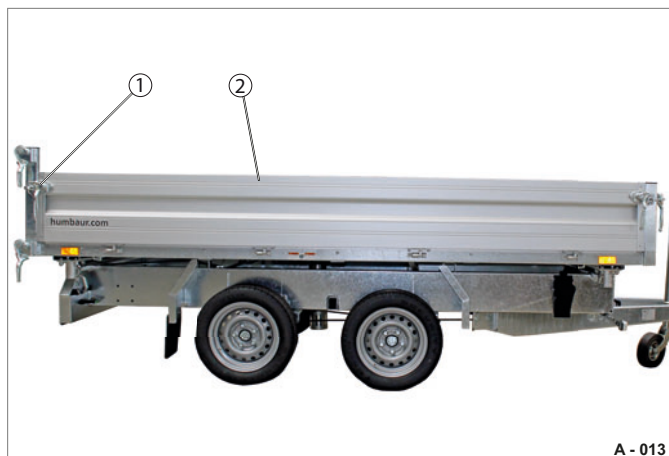


Fig. 13 Drop side closed

- 1 Angle lever lock
- 2 Front drop side

- ▶ Carefully fold the front drop side (Fig. 13 /2) up in a controlled manner.
- ▶ Lock the angle lever lock (Fig. 13 /1), variant 1 (See "Locking" on page 61.).

Handling the side drop side



A - 013

Fig. 14 Side drop side closed

- 1 Angle lever lock
- 2 Side drop side

The side drop sides (Fig. 14 /2) are movably mounted in the drop side hinges (Fig. 15 /2).

The drop sides are secured with locks (Fig. 14 /2) on the left and right.

- ▶ Only open or close the side drop sides if the cargo bed is horizontal.
- ▶ Release the locks one by one.
- ▶ Keep a firm hold of the drop side when doing so.

Folding down



A - 016

Fig. 15 Drop side open

- 1 Cargo bed
- 2 Drop side hinge
- 3 Side drop side
- 4 Danger area

▶ Release the angle lever lock, variant 1 (See "Unlocking" on page 61.).

▶ Carefully fold down the side drop side (Fig. 15 /2) in a controlled manner.

The cargo bed (Fig. 15 /1) can be tipped.

- ▶ Leave the danger area (Fig. 15 /3).
- ▶ Keep people away.

Closing



A - 015

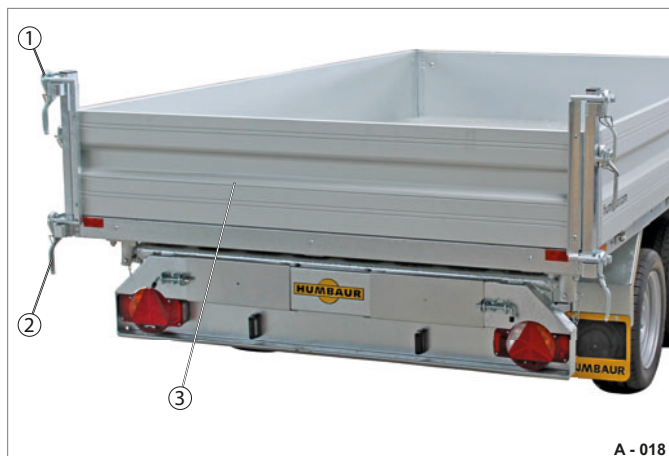
Fig. 16 Close the drop side

- 1 Side drop side
- 2 Angle lever lock

▶ Carefully fold the side drop side (Fig. 16 /1) up in a controlled manner.

▶ Lock the angle lever lock (Fig. 16 /2), variant 1 (See "Locking" on page 61.).

Handling the rear drop side



A - 018

Fig. 17 Rear drop side closed

- 1 Angle lever lock, variant 2 (top)
- 2 Angle lever lock, variant 2 (bottom)
- 3 Rear drop side

The rear drop side (Fig. 17 /3) can be folded down and removed.

The rear drop side can be used in swinging operation.

The rear drop side is secured with two angle lever locks at the top and two at the bottom.

**WARNING****Opening the rear drop side with the cargo bed tilted**

The rear drop side can fly open through the pressure of the load - risk of impact / crushing!

- ▶ Release the rear drop side before tipping the cargo bed.

Folding down



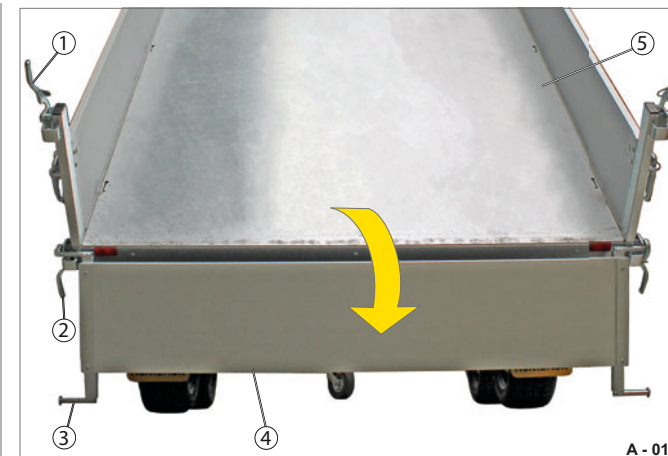
A - 020

Fig. 18 Release the rear drop side at the top

- 1 Lever
- 2 Locking spring
- 3 Pivot
- 4 Angle lever lock, variant 2 (top)

- ▶ Check that the angle lever locks, variant 2 (bottom) (Fig. 17 /2) are closed and secured.

- ▶ Release the top angle lever locks, variant 2 (Fig. 18 /4) (See "Unlocking" on page 62.).



A - 019

Fig. 19 Rear drop side folded down

- 1 Angle lever lock, variant 2 (top), unsecured
- 2 Angle lever lock, variant 2 (bottom), secured
- 3 Pivot
- 4 Rear drop side
- 5 Cargo bed

- ▶ Carefully fold down the rear drop side (Fig. 19 /4) in a controlled manner.

The cargo bed (Fig. 19 /5) can be tipped.

Closing



Fig. 20 Close the rear drop side

- 1 Angle lever lock, variant 2 (top)
- 2 Rear drop side

- ▶ Carefully fold the rear drop side (Fig. 20 /2) up in a controlled manner.
- ▶ Close the angle lever locks, variant 2 (top) (Fig. 20 /1) in turn (See “Locking” on page 62.).
The rear drop side has been secured at the top with both locks.

Swinging operation



Fig. 21 Rear drop side released at the bottom

- 1 Lever
- 2 Locking spring
- 3 Pivot
- 4 Rear drop side

- ▶ Check that the angle lever locks, variant 2 (top) (Fig. 20 / 1) are closed and secured.
- ▶ Release the angle lever locks, variant 2 (bottom) (Fig. 21) (See “Unlocking” on page 62.).
- ▶ Tip the cargo bed.
The bulk goods can be unloaded.

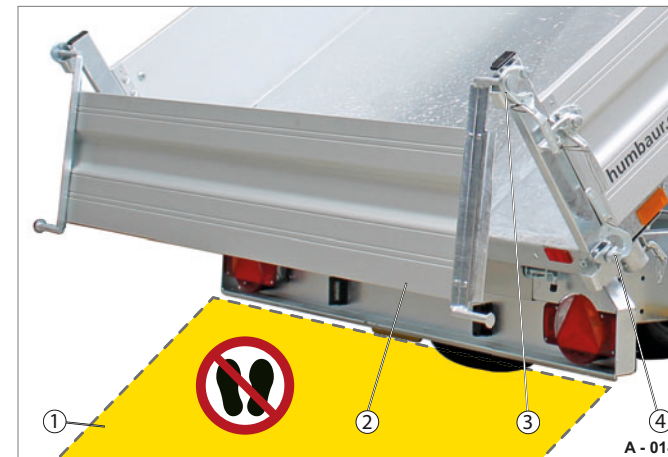


Fig. 22 Rear drop side in swinging operation

- 1 Danger area
- 2 Rear drop side
- 3 Angle lever lock, variant 2 (top), secured
- 4 Angle lever lock, variant 2 (bottom), open

- ▶ Leave the danger area (Fig. 22 /1) and keep people away.

Closing

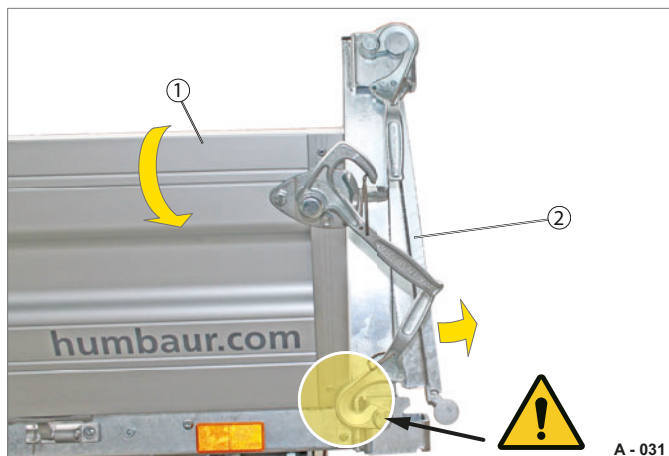


Fig. 23 Open the side drop side

- 1 Side drop side, released
- 2 Rear drop side, released

NOTICE

Deformation of the side drop side / angle lever lock

There is danger of collision with an open rear drop side in swinging operation combined with the opening of the side drop side!

- ▶ Before releasing the side drop side, check that the angle lever lock is not in the movement range of the side drop side.
-
- ▶ Close the rear drop side (Fig. 23 /2) if required.



Fig. 24 Rear drop side closed

- 1 Angle lever lock, variant 2 (top), secured
- 2 Angle lever lock, variant 2 (bottom), secured

- ▶ Carefully fold the rear drop side up in a controlled manner.
- ▶ Close the angle lever locks, variant 2 (bottom) (Fig. 24 / 2) in turn (See "Locking" on page 62.).
The rear drop side has been secured at the bottom with both locks.

Removal of the drop sides and stanchions



Fig. 25 HTK as a flat-bed trailer

! Form-fitting load securing is not possible when using the trailer as a flat-bed. Force-fitting load securing must be provided.

The drop sides and stanchions can be removed. The trailer can be used as a flat-bed e.g. for transporting construction machinery / vehicles.

Remove the rear drop side



Fig. 26 Remove the rear drop side

- 1 Angle lever lock, variant 2 (top)
- 2 Pivot
- 3 Rear drop side
- 4 Angle lever lock, variant 2 (bottom)

- ▶ Release the angle lever locks at the bottom (Fig. 26 /4).
- ▶ Release the angle lever locks at the top (Fig. 26 /1) - keep a firm hold of the rear drop side (Fig. 26 /3) when doing so.
- ▶ Remove the rear drop side from the pivots (Fig. 26 /2).

Releasing the drop sides

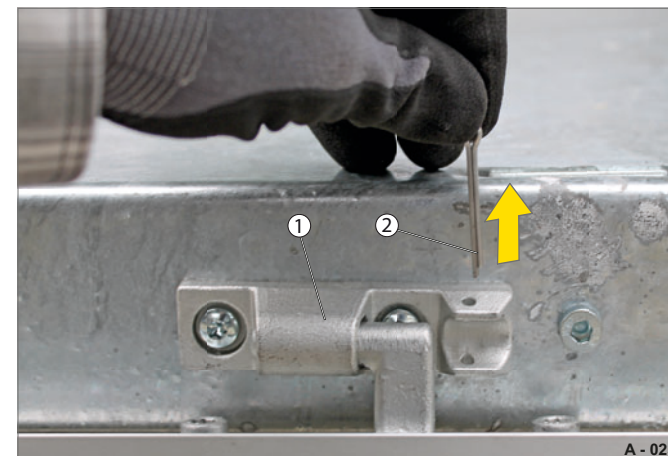


Fig. 27 Removing the drop side

- 1 Drop side hinge
- 2 Securing split pin

- ▶ Carefully fold down the drop side (Fig. 28 /1) in a controlled manner.
- ▶ Remove the securing split pin (Fig. 27 /2) from the drop side hinge (Fig. 27 /1) - keep it in a safe place.

Removing the drop sides

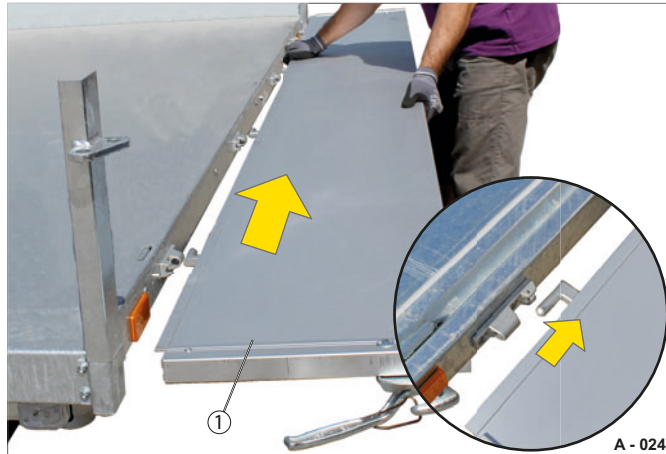


Fig. 28 Removing the drop side

- 1 Drop side

- ▶ Hold the drop side (Fig. 28 /1) lengthwise approximately in the middle.
- ▶ Fold the drop side to a horizontal position.
- ▶ Carefully pull out the drop side in the direction that is now unobstructed.
- ▶ Put the drop side somewhere where it is safe from damage.

Removing the stanchions

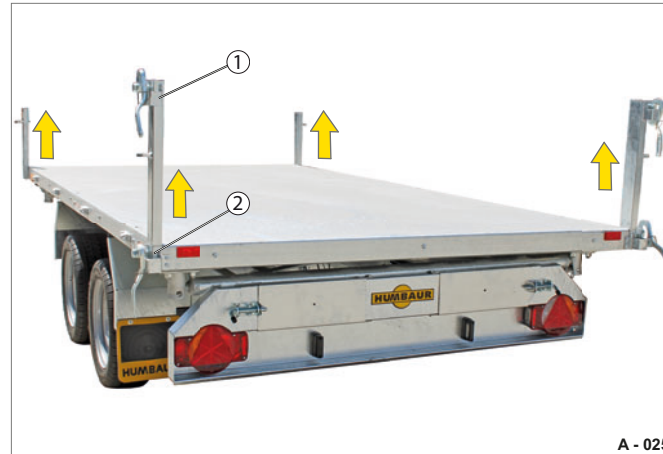


Fig. 29 Removing stanchions

- 1 Stanchion
- 2 Stanchion pocket

- ▶ Pull the stanchions (Fig. 29 /1) out of the stanchion pockets (Fig. 29 /2).

If the stanchions are stuck:

- ▶ Release them by carefully tapping the side with a soft-head hammer.
- ▶ Store the stanchions safely to prevent damage.

Putting on the stanchions

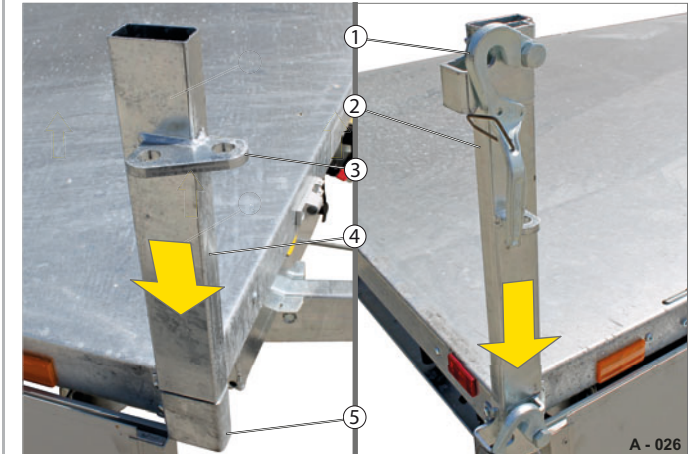


Fig. 30 Inserting the stanchions

- 1 Rotary lever lock
- 2 Long stanchion (at the rear)
- 3 Eyelet
- 4 Short stanchion (at the front)
- 5 Stanchion pocket

- ▶ Insert the long stanchion (Fig. 30 /2) in the rear stanchion pocket (Fig. 30 /5).
 - Ensure that the rotary lever lock (Fig. 30 /1) points to the outside and that the lever is opened to the rear.
- ▶ Insert the short stanchion (Fig. 30 /4) in the front stanchion pocket.
 - Ensure that the eyelet (Fig. 30 /3) points to the outside and to the front.

If the stanchions cannot be inserted by hand:

- ▶ Carefully tap the side of the stanchion assembly with a soft-head hammer until the stanchion goes all the way in.

Closing / securing the drop sides

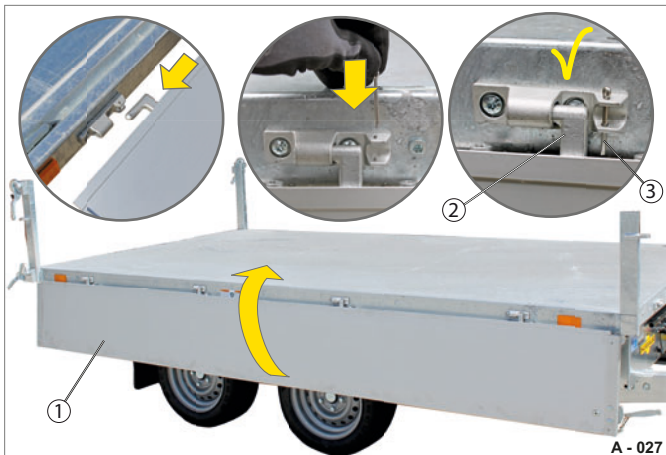


Fig. 31 Folding up the drop side

- 1 Drop side
- 2 Drop side hinge
- 3 Securing split pin

- ▶ Hold the drop side (Fig. 31 /1) lengthwise approximately in the middle.
- ▶ Slide the drop side onto the drop side hinges (Fig. 31 /2) in a horizontal position.
- ▶ Push the securing split pin (Fig. 31 /3) into one of the drop side hinges and spread the securing split pin slightly.
Replace any damaged securing split pins.

Locking the drop sides

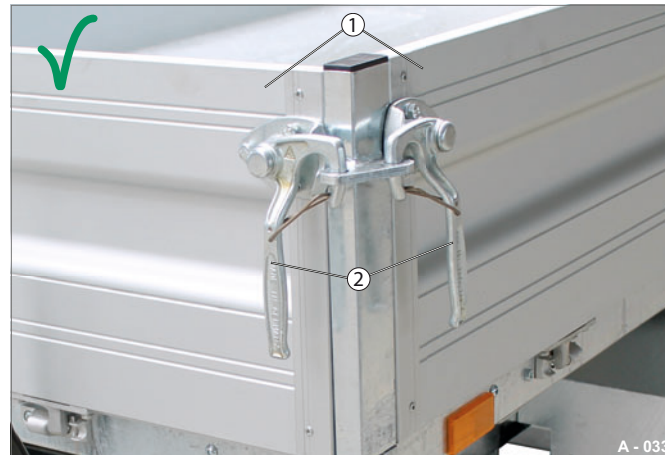


Fig. 32 Drop sides secured

- 1 Drop sides
- 2 Angle lever lock



WARNING

Unsecured drop side hinges / drop sides

The drop side could slide off / drop off the drop side hinges when it is folded down - risk of impact / crushing!

- ▶ Before handling the drop side, ensure that it has been secured in one of the drop side hinges with a securing split pin.
 - ▶ Replace any damaged / worn securing split pins.
-
- ▶ Fold up the drop side (Fig. 32 /1).
- Ensure that the angle lever locks (Fig. 32 /2) are open.
 - ▶ Lock all drop side rotary lever locks. While doing so, hold the drop sides firmly with one hand.
- The side drop sides and the front drop side have been closed and secured.

Mounting the rear drop side

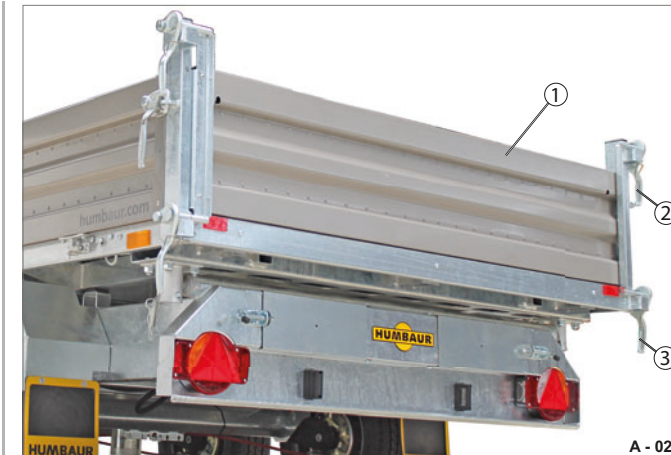


Fig. 33 Rear drop side secured

- 1 Rear drop side
- 2 Angle lever lock, variant 2 (top)
- 3 Angle lever lock, variant 2 (bottom)

- ▶ Place the rear drop side on the top angle lever locks by means of the pivots (Fig. 33 /2).
- ▶ Close the top angle lever locks.
- ▶ Close the rear drop side (Fig. 33 /1).
- ▶ Lock the bottom angle lever locks (Fig. 33 /3).
The rear drop side has been closed and secured.

Handling the steel mesh extension / aluminium extension / side wall extension



A - 060

Fig. 34 Steel mesh extension, four-sided

- 1 Side steel mesh extension
- 2 Rear steel mesh extension
- 3 Stanchion extension
- 4 Rear drop side



A - 061

Fig. 35 Overview of closed steel mesh extension

- 1 Rear steel mesh extension
- 2 Angle lever lock, variant 2 (top)
- 3 Angle lever lock, variant 1
- 4 Rear drop side
- 5 Angle lever lock, variant 2 (bottom)
- 6 Side steel mesh extension
- 7 Side drop side



A - 090

Fig. 36 Aluminium extension, four-sided

- 1 Aluminium extension

The steel mesh extension / aluminium extension are (620 mm high) and increase the load volume of the trailer.

The extensions consist of 4 steel mesh walls / aluminium extension walls and 4 stanchion extensions.

The extension walls are placed on the base drop sides and secured with locks.

The function of the base drop sides (folding down and swinging operation) remains unchanged.

The extension walls can be used in swinging operation.

The aluminium extension is handled in the same way as the steel mesh extension.



A - 091

Fig. 37 Side wall extension

- 1 Side side wall extension
- 2 Rear side wall extension
- 3 Hinge of side wall extension

The height of the side wall extension is 350 mm, the same as the height of the base drop side.

The side side wall extensions (Fig. 37 /1) are handled in the same way as the side steel mesh extensions.

The handling of the rear side wall extension (Fig. 37 /2) is explained separately (see from Page 76).



WARNING



Fitting / removing the extensions

Extensions could fall off - risk of crushing!



- ▶ two people are required to handle them.



- ▶ Use



WARNING

Driving with stanchion extensions inserted without extensions

The stanchion extensions are not secured and could be thrown off - risk of impact / accident!

- ▶ Remove the stanchion extensions when disassembling the extensions.



WARNING

Driving with unsecured extensions!

Unsecured extensions could be thrown off while driving - risk of impact / accident!

- ▶ Screw the stanchion extensions into the stanchions of the base drop side.
- ▶ Close all locks on the base drop sides before driving off.
- ▶ Before setting off, check that all extensions and lamellar plugs are securely attached.



CAUTION



Swinging extensions around

Swung around extensions could come out and fall down - risk of impact / accident!

- ▶ Do not swing around the extension walls.
- ▶ If required, remove the extension walls for loading / unloading.

Tipping to the side



Fig. 38 Fold down the side drop side

- 1 Angle lever lock, variant 1
- 2 Side steel mesh extension
- 3 Side drop side

- ▶ Release the angle lever locks (Fig. 38 /1), variant 1 (See “Unlocking” on page 61.) on both sides.
- ▶ Carefully fold down the side drop side (Fig. 38 /3) in a controlled manner.
The side steel mesh extension (Fig. 38 /2) is released.
The cargo bed (Fig. 39 /2) can be tipped.

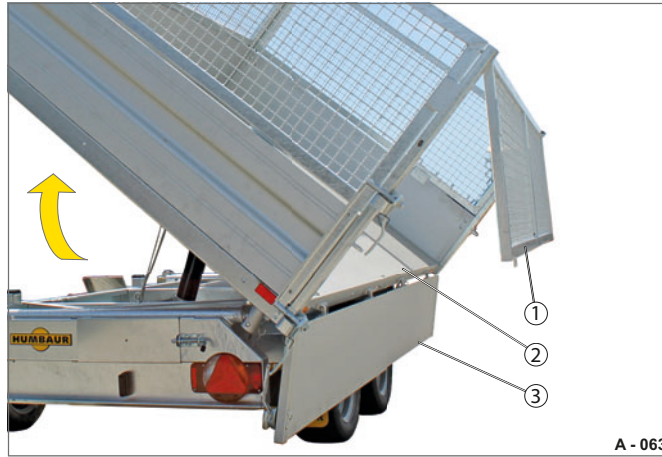


Fig. 39 Cargo bed tipped to the side

- 1 Steel mesh extension
- 2 Cargo bed
- 3 Side drop side

- ▶ Tip the cargo bed (Fig. 39 /2).
The side drop side (Fig. 39 /3) has been folded down and the side steel mesh extension (Fig. 39 /1) is in swinging operation.

Closing at the side



Fig. 40 Steel mesh extension closed

- 1 Angle lever lock, variant 1, closed

- ▶ Tilt the cargo bed back to the start position.
- ▶ Close the side drop side and lock the angle lever locks (Fig. 40 /1).
The steel mesh extension has been closed and secured.

Tipping to the rear

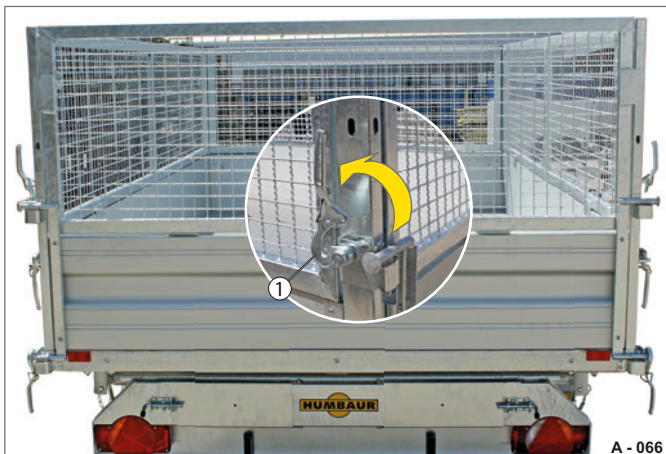


Fig. 41 Release the rear drop side

- 1 Angle lever lock, variant 2 (top)

- ▶ Check that the angle lever locks (bottom) (Fig. 42 /3) are closed.
- ▶ Release the angle lever lock, variant 2 (top) (Fig. 41 /1) (See "Unlocking" on page 62.)

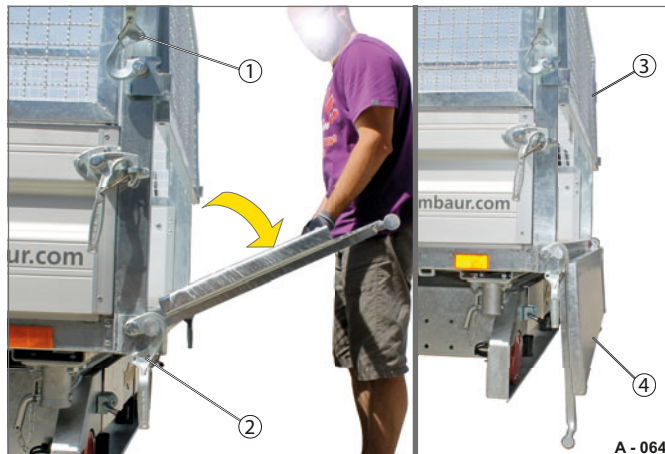


Fig. 42 Open the rear drop side

- 1 Angle lever lock, variant 2 (top)
 2 Angle lever lock, variant 2 (bottom)
 3 Rear steel mesh extension
 4 Rear drop side

- ▶ Carefully fold down the rear drop side (Fig. 42 /4) in a controlled manner.
 The rear steel mesh extension (Fig. 42 /3) is released.



Fig. 43 Tipping to the rear

- 1 Rear drop side
 2 Rear steel mesh extension

**WARNING****Swinging the steel mesh extension around at the rear**

Swung around steel mesh extensions could come out of the stanchion extension and turn over
 - Risk of impact/crushing!

- ▶ Do not swing the steel mesh extension out on the side steel mesh extensions.
- ▶ If required, remove the steel mesh extension at the rear.

- ▶ Tip the trailer to the back.
 The rear drop side (Fig. 43 /1) has been folded down and the rear steel mesh extension (Fig. 43 /2) is in swinging operation.

Swinging operation of rear drop side with steel mesh - tipping



Fig. 44 Tipped to the rear

- 1 Rear drop side, swinging operation

The rear drop side can be opened for unloading fine-grain bulk goods such as sand and gravel.

- ▶ Release the angle lever lock, variant 2 (bottom) (See "Unlocking" on page 62.).
- ▶ Tip the trailer to the back.
The rear drop side (Fig. 44 /1) is in swinging operation.
The steel mesh extension has been closed and secured.



Fig. 45 Steel mesh extension swinging freely

- 1 Rear steel mesh extension

NOTICE

Unloading coarse bulk goods e.g. stone

The rear drop side could be deformed when unloading large rocks in swinging operation.

- ▶ Remove the rear drop side.

The rear drop side can be removed if required.

- ▶ Remove the rear drop side (Fig. 44 /1) (See "Remove the rear drop side" on page 68.).
- ▶ Tip the trailer to the back.
The rear steel mesh extension (Fig. 45 /1) is swinging freely.



Fig. 46 Steel mesh extension unsecured

- 1 Rear steel mesh extension
2 Rear drop side



CAUTION



Steel mesh extension and rear drop side in swinging operation!

The rear steel mesh extension bangs against the rear drop side during the tilting back process - risk of crushing!

- ▶ Ensure that the rear steel mesh extension has been secured before tipping through the rear drop side.



Driving with the rear drop side removed is prohibited!

- ▶ Mount the rear drop side (Fig. 46 /2) after tilting back the cargo bed (See "Mounting the rear drop side" on page 70.).

Swinging operation of rear drop side with side wall extension - tipping

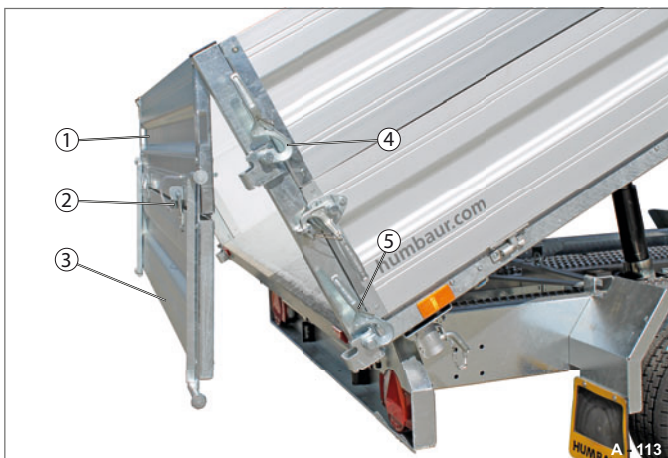


Fig. 47 Swinging operation with side wall extension

- 1 Rear side wall extension
- 2 Hinge of side wall extension
- 3 Rear drop side
- 4 Angle lever lock, variant 2 (top)
- 5 Angle lever lock, variant 2 (bottom)

Swinging operation

- ▶ Release the angle lever locks, variant 2 (top) (Fig. 47 /4) (see "Unlocking" on page 62)
- ▶ Release the angle lever locks, variant 2 (bottom) (Fig. 47 /5) (see "Unlocking" on page 62).

The rear side wall extension (Fig. 47 /1) is released.

The rear drop side is attached to the hinges (Fig. 47 /2) of the side wall extension.

The cargo bed can be tipped.

- ▶ Tip the cargo bed.

The rear drop side (Fig. 47 /3) and the rear steel mesh extension are in swinging operation.

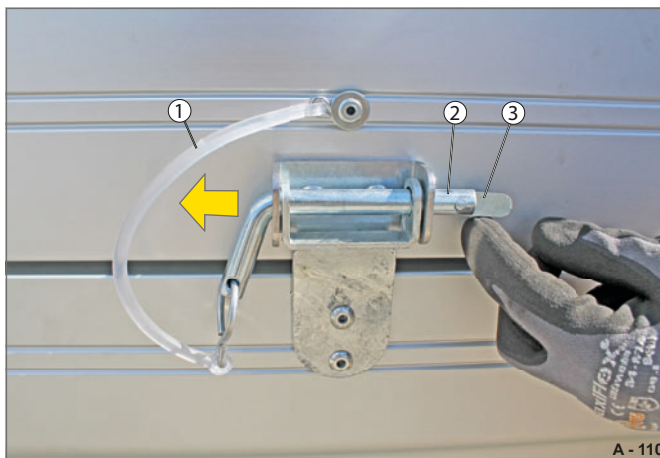


Fig. 48 Release the hinge of the side wall extension

- 1 Elastic cord
- 2 Plug pins
- 3 Latch

Folding down

- ▶ Swivel the latch (Fig. 48 /3) into the horizontal position.
- ▶ Pull the plug pin (Fig. 48 /2) from the hinge (Fig. 48 /2).
- ▶ The plug pin is secured against loss with an elastic cord (Fig. 48 /1).

The rear drop side has been detached from the side wall extension



Fig. 49 Release the rear drop side

- 1 Rear drop side
- 2 Plug pins
- 3 Angle lever lock, variant 2 (top)

- ▶ Release the angle lever locks, variant 2 (top) (Fig. 49 /3) (see "Unlocking" on page 62)
- ▶ Carefully fold down the rear drop side (Fig. 49 /1) slightly. The plug pins (Fig. 49 /2) hang over the rear drop side.

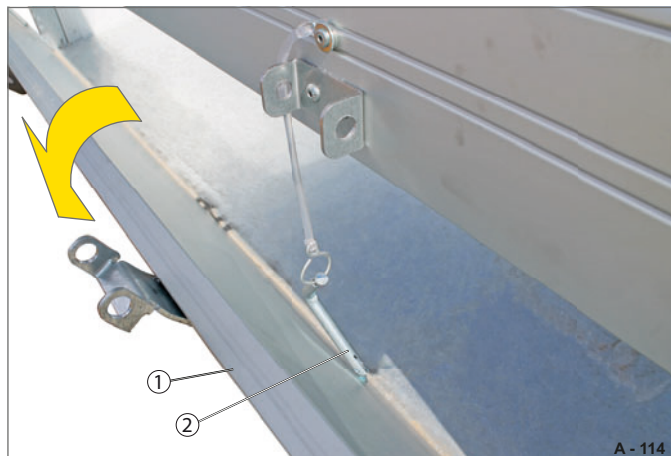


Fig. 50 Fold down the rear drop side

- 1 Rear drop side
- 2 Plug pins

CAUTION

Folding down the rear drop side

Freely suspended plug pins could bounce up when the rear drop side is being folded down - risk of being hit!

- ▶ Check that the plug pins are not in the movement range of the rear drop side.

- ▶ Position the plug pins (Fig. 50 /2) to the inside.
- ▶ Fold down the rear drop side (Fig. 50 /1) completely.

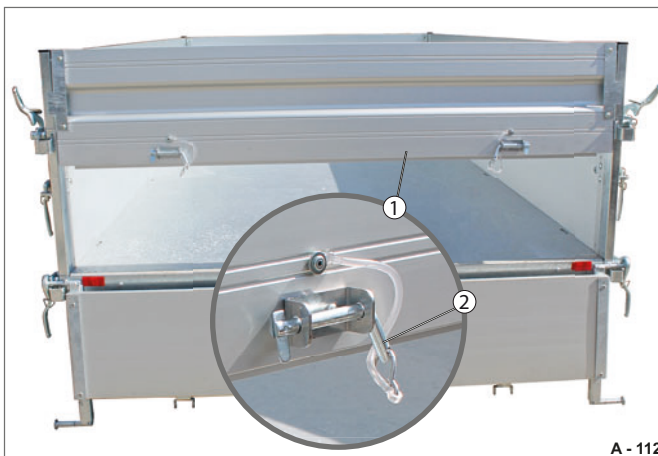


Fig. 51 Folding down the rear drop side

- 1 Side wall extension
- 2 Plug pin secured

- ▶ Insert the plug pins (Fig. 51 /2) in the hinges of the side wall extension (Fig. 51 /1).
- ▶ Tip the cargo bed to the back.

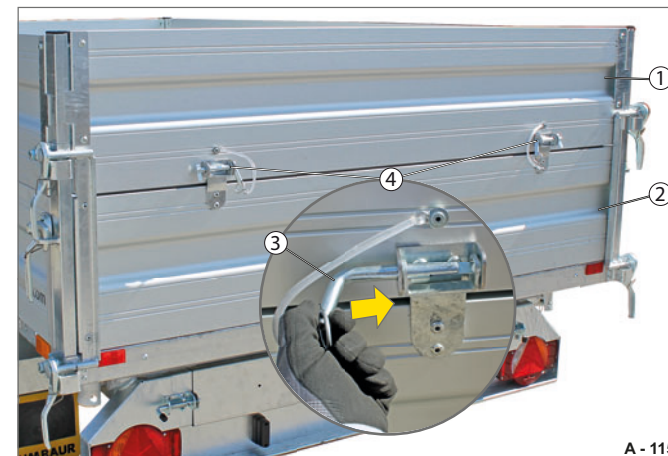


Fig. 52 Drop side / side wall extension secured

- 1 Side wall extension
- 2 Rear drop side
- 3 Plug pin secured
- 4 Hinge

- ▶ Tilt the cargo bed back to the driving position.
- ▶ Release and pull the plug pin (Fig. 52 /3) out of the hinges (Fig. 52 /4).
- ▶ Carefully fold up the rear drop side (Fig. 52 /2).
- ▶ Position the plug pins in front of the rear drop side in the process.
- ▶ Close the rear drop side and lock the angle lever locks.
- ▶ Secure the hinges with the plug pins.
The rear drop side and the side wall extension (Fig. 52 /1) have been closed and secured.

Removal

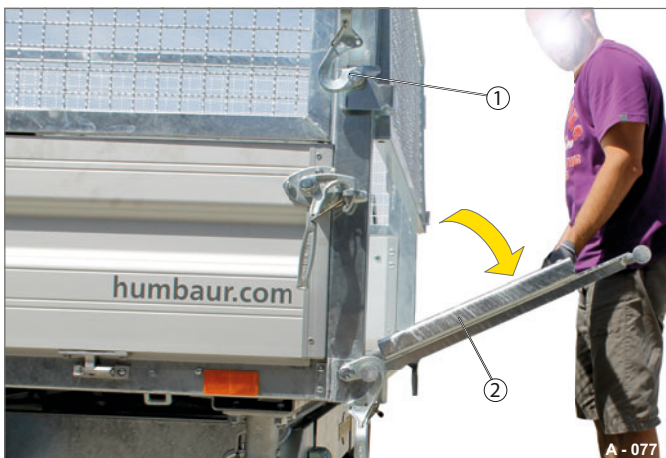


Fig. 53 Fold down the rear drop side

- 1 Angle lever lock, variant 2 (top)
- 2 Rear drop side

- ▶ Release the angle lever lock (top) (Fig. 53 /1), variant 2 (See "Unlocking" on page 62.).
- ▶ Carefully fold down the rear drop side (Fig. 53 /2) in a controlled manner.



Fig. 54 Fold down the side drop side

- 1 Side drop side

- ▶ Release the angle lever lock, variant 1 (See "Unlocking" on page 61.).
- ▶ Carefully fold down the side drop side (Fig. 54 /1) in a controlled manner.

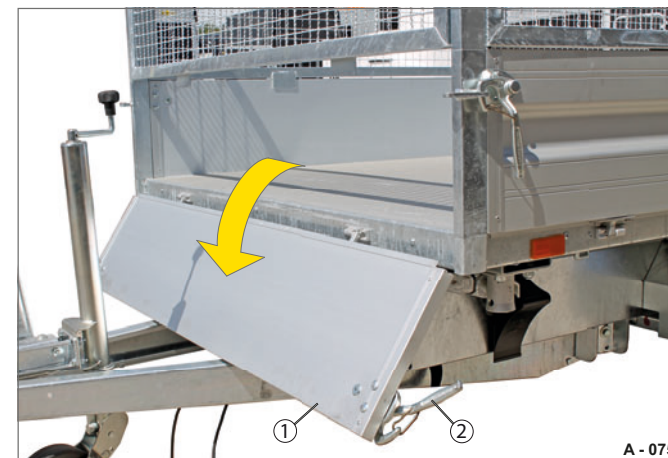


Fig. 55 Folding down the front drop side

- 1 Front drop side
- 2 Angle lever lock, variant 1

- ▶ Release the angle lever lock (Fig. 55 /2), variant 1 (See "Unlocking" on page 61.).
- ▶ Carefully fold down the front drop side (Fig. 55 /1) in a controlled manner.

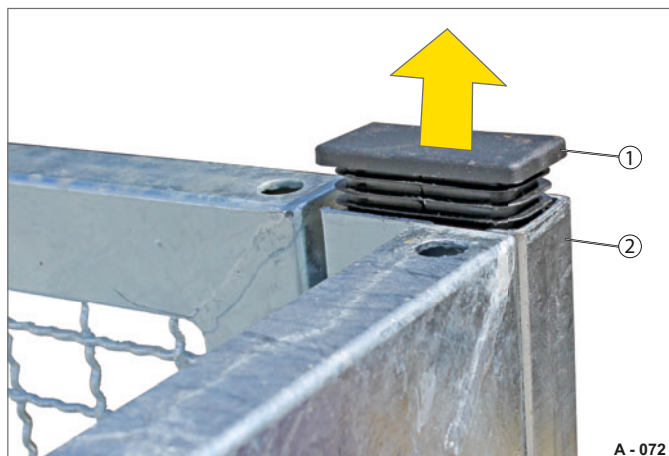


Fig. 56 Remove the lamellar plugs

- 1 Lamellar plugs
- 2 Stanchion extension

- ▶ Remove the four lamellar plugs (Fig. 56 /1) from the stanchion extensions (Fig. 56 /2) - use tools.
- ▶ Keep the lamellar plugs in a safe place.



Fig. 57 Remove the steel mesh extension

- 1 Steel mesh extension
- 2 Lug

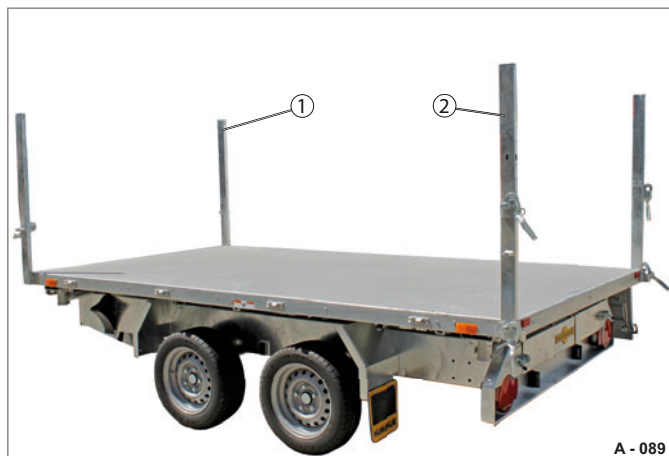
- ▶ Lever the steel mesh extension (Fig. 57 /1) diagonally upwards out of the stanchion extensions. The lugs (Fig. 57 /2) will move out of the guides.
- ▶ Put the steel mesh extension somewhere where it is safe from damage.
- ▶ Keep the lamellar plugs in a safe place.



Fig. 58 Rear steel mesh extension removed

- 1 Steel mesh extension, side + front
- 2 Rear drop side, folded down

- The rear steel mesh extension (Fig. 58 /1) has been removed.
- The rear drop side (Fig. 58 /2) has been folded down. The trailer can be loaded at the rear.
- ▶ Tip the cargo bed to the rear to unload bulk goods.



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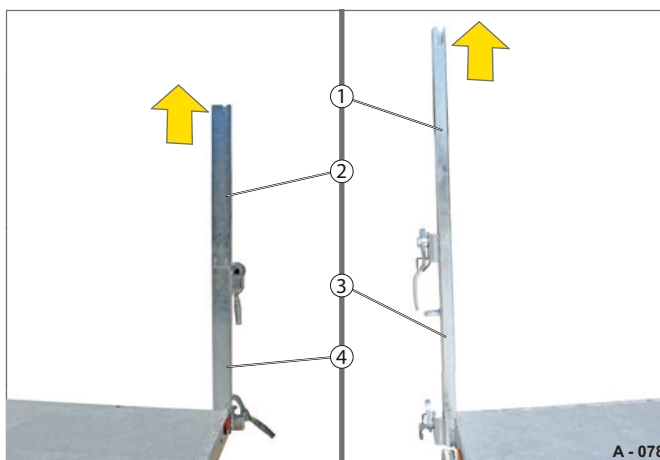
Fig. 59 Stanchion extension inserted

- 1 Stanchion extension, front (long)
- 2 Stanchion extension, rear (short)



The stanchion extensions (Fig. 59) may not be used for load securing.

- ▶ Remove all stanchion extensions before setting off and before loading / unloading.



A - 078

Fig. 60 Remove the stanchion extensions

- 1 Stanchion extension (short)
- 2 Stanchion extension (long)
- 3 Stanchion (long)
- 4 Stanchion extension (short)

- ▶ Grip the stanchion extension (Fig. 60) and pull it out upwards.



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Fig. 61 Steel mesh extension removed

The trailer can be used without the steel mesh extension.

- ▶ Keep the steel mesh extension and the stanchion extensions in a safe place for future use.

Fitting

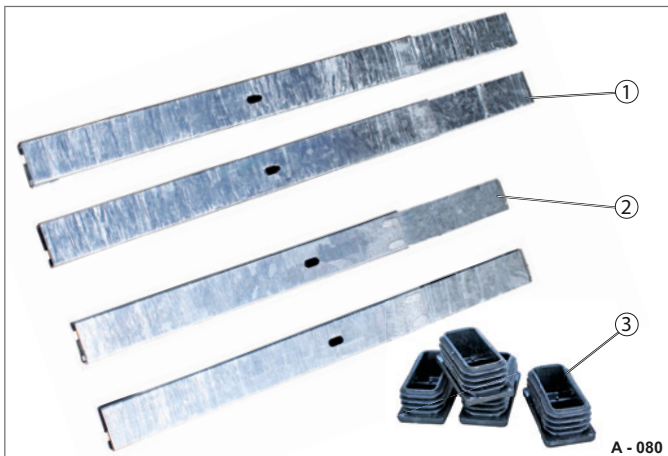


Fig. 62 Steel mesh extension components

- 1 Stanchion extension (long)
- 2 Stanchion extension (short)
- 3 Lamellar plugs

The long stanchion extensions are mounted at the rear.
The short stanchion extensions are mounted at the front.
The lamellar plugs (Fig. 62 /3) secure the steel mesh extension in the stanchion extensions.

- Lay out the stanchion extensions (long) (Fig. 62 /1) and the stanchion extensions (short) (Fig. 62 /2).

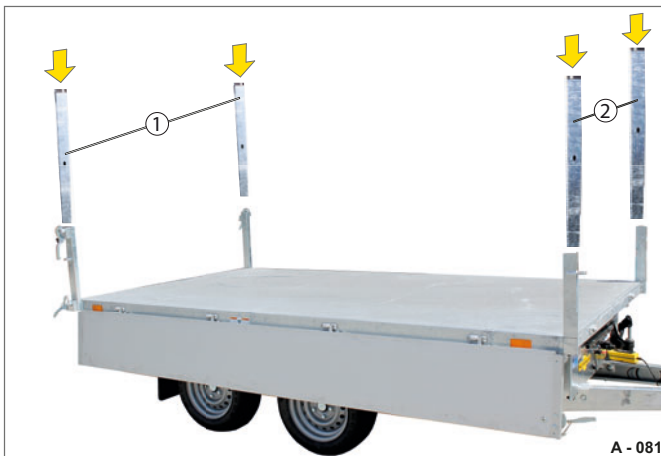


Fig. 63 Position the stanchion extensions

- 1 Stanchion extensions (short)
- 2 Stanchion extensions (long)

- Position the stanchion extensions (Fig. 63) for the respective stanchions of the drop sides - note short / long.

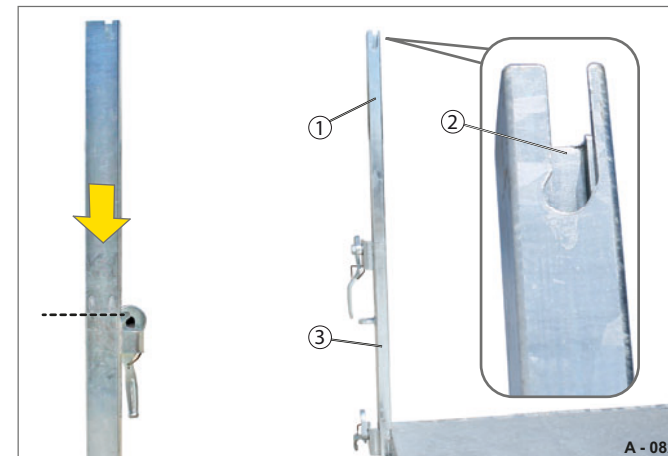


Fig. 64 Inserting the stanchion extension

- 1 Stanchion extension
- 2 Guide
- 3 Stanchion

- Insert the stanchion extension (Fig. 64 /1) all the way into the stanchion (Fig. 64 /3) with the guides (Fig. 64 /2) pointing towards the cargo bed (pointing inwards).

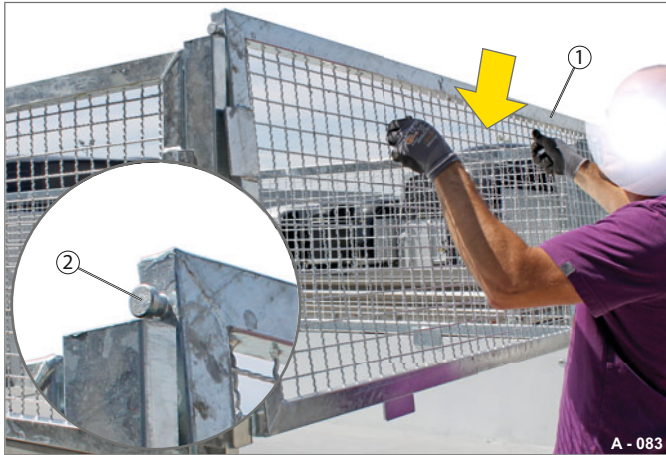


Fig. 65 Attach the steel mesh extension

- 1 Steel mesh extension
- 2 Lug

► Insert the steel mesh extension (Fig. 65 /1) in the guide (Fig. 64 /2) of the stanchion extension by means of the lugs (Fig. 65 /2).

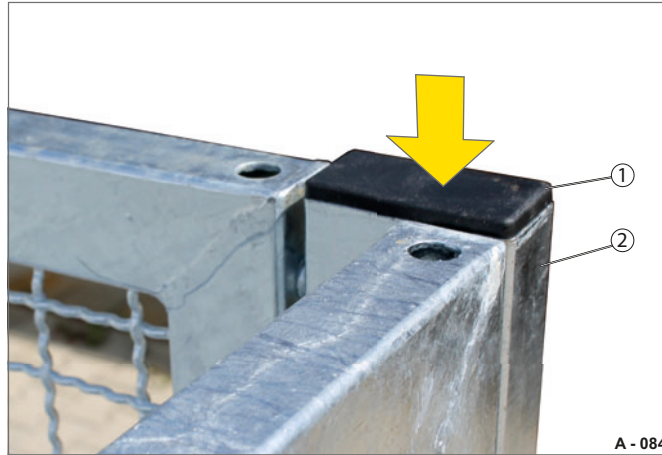


Fig. 66 Inserting the lamellar plugs

- 1 Lamellar plugs
- 2 Stanchion extension

► Insert the lamellar plugs (Fig. 66 /1) in the stanchion extension (Fig. 66 /2) - tap them in gently.



Fig. 67 Steel mesh extension fitted

- Close and lock the drop sides (See "Closing" on page 66.) on all sides.
 - Before setting off, make sure that all the lamellar plugs (Fig. 66 /1) have been securely fitted in the stanchion extensions (Fig. 66 /2).
- The steel mesh extension has been fitted and secured.

Handling the cover net

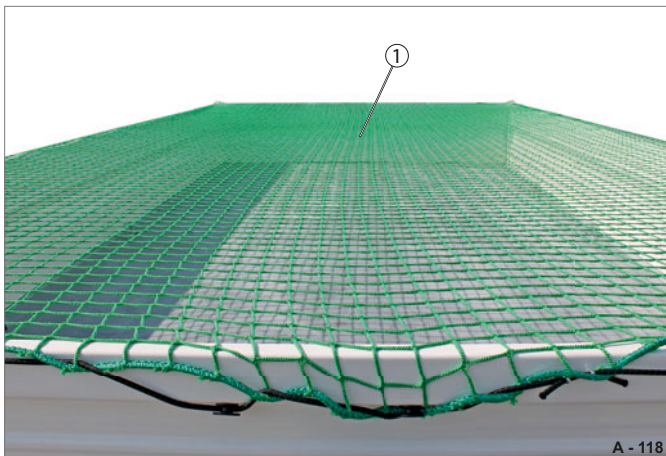


Fig. 68 Cargo bed with the cover net pulled tight

1 Cover net

The cover net is stretched over the drop sides and secured to the hooks with an elastic cable.

The cover net is for securing loose load materials e.g.: light garden waste, leaves, twigs, wood chips, grass, paper, cardboard packaging, etc. which have to be prevented from flying off the cargo bed.



Fig. 69 Securing element for cover net

1 Hook



Instructions for handling the tarpaulin cover / frame are provided in the operating instruction manual, "Trailers up to 3.5 to General - Part 1."



The cover net may only be used with closed drop sides / extensions.

The cover net is not designed for securing the drop sides / extensions.

The cover net / elastic cable may not have any tears.



CAUTION



Unsecured / incompletely attached cover net!

The cover net could come loose and fly around when driving. The load could be stirred up / thrown out - accident risk!

► Make sure that the cover net covers the drop sides completely and has been secured before driving off.

Attachment

The hooks must be riveted to the side, front and rear drop sides.

- Have the hooks attached around the trailer in a specialist workshop.
- Place the cover net over the cargo bed.
- Attach the elastic cable to the hooks in turn.
- Wrap the elastic cable around the locks on the stanchions.
- Make sure that the cover net has been tensioned on all sides of the trailer before driving off.

Removal

- Pull the elastic cable off all the hooks in turn.
- Fold the cover net together and stow it safely away e.g. in the toolbox.

Handling the flat cover



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Fig. 70 Example: Flat cover with base drop side

- 1 Flat cover
- 2 Tension rope

The flat cover can be stretched over the base drop side, side wall extensions, steel mesh extensions and aluminium extensions.

The flat cover is secured by means of tension ropes and hooks or with staples.

The lateral bracings support the flat cover and prevent damage which could be caused by accumulation of water / load.



A - 096

Fig. 71 Example: Half-height cover

- 1 Half-height cover
- 2 Tension rope



A - 095

Fig. 72 Example: Flat cover with side wall extension

- 1 Flat cover
- 2 Staple

Fitting

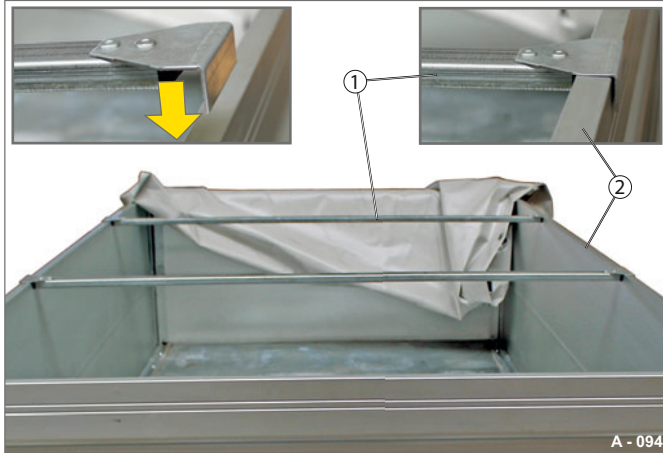


Fig. 73 Lateral bracings positioned

- 1 Lateral bracing with angle bracket
- 2 Side drop side

► Attach the lateral bracing(s) (Fig. 73 /1) to the side drop sides (Fig. 73 /2) arranged in parallel at equally spaced intervals in the central area of the cargo bed.



Fig. 74 Preparing a tension rope with a hook

- 1 Tension rope
- 2 Hook

► Thread the tension rope (Fig. 74 /1) through the hook (Fig. 74 /2).
 ► Loop the tension rope around and pull it tight at the hook.

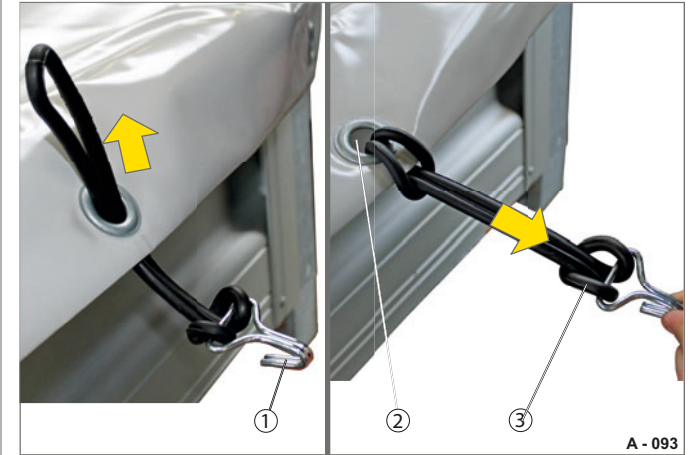


Fig. 75 Fasten the tension rope

- 1 Hook
- 2 Eyelet
- 3 Tension rope

► Stretch the flat cover over the drop sides or side wall extensions.
 ► Fasten the tension ropes (Fig. 75 /3) with hooks (Fig. 75 /1) in the eyelets (Fig. 75 /2) of the flat cover. - Thread the tension rope through the eyelet of the flat cover and loop it around.

Handling



Fig. 76 Releasing the flat cover (with base drop side)

- 1 Tension rope
- 2 Hook
- 3 Drop side slot



CAUTION



Tension ropes are under tension!

There is a risk of injury when adjusting the tension ropes at the hooks.

- ▶ Keep a firm hold of the tension ropes when making adjustments - do not let go of the ropes while they are under tension.
- ▶ Keep a firm hold of the tension ropes (Fig. 76 /1) when making adjustments - do not let go of the ropes while they are under tension.
- ▶ Pull the hooks (Fig. 76 /2) out of the drop side slot (Fig. 76 /3).
- ▶ Open and remove the flat cover.
- ▶ Put the flat cover somewhere where it is safe from damage.

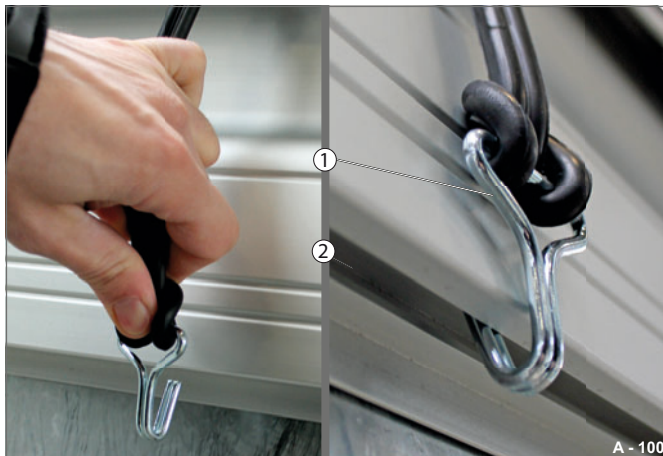


Fig. 77 Securing the flat cover (with base drop side)

- 1 Hook
- 2 Drop side slot

- ▶ Stretch the flat cover across the drop sides or side wall extensions.
- ▶ Secure the flat cover on all sides by inserting the hooks (Fig. 77 /1) in the drop side slot (Fig. 77 /2) of the base drop sides.

The flat cover has been closed and secured.

Flat cover on aluminium extension

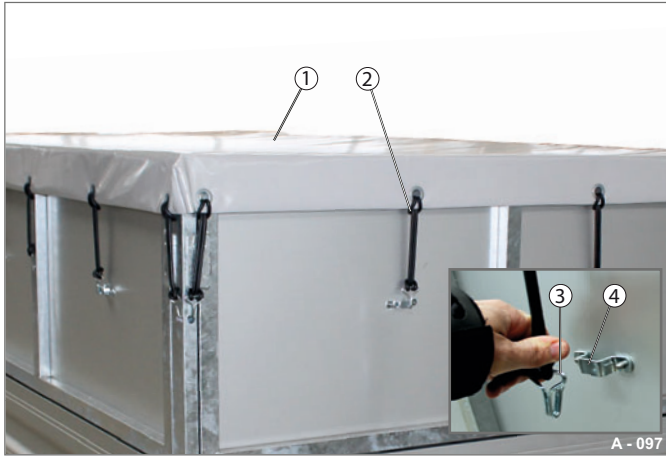


Fig. 78 Flat cover (with aluminium extension)

- 1 Flat cover
- 2 Tension rope
- 3 Hook
- 4 Eyelet

- ▶ Pull the hooks (Fig. 78 /3) out of the eyelets (Fig. 78 /4) or holes (Fig. 79 /5).
- ▶ Open and remove the flat cover (Fig. 78 /1).
- ▶ Put the flat cover somewhere where it is safe from damage.

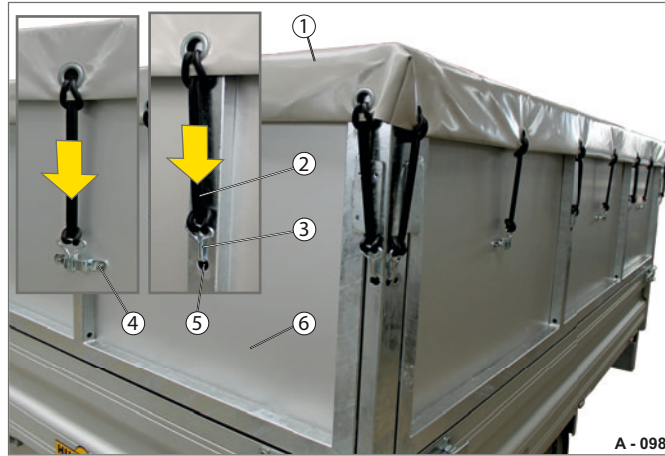


Fig. 79 Flat cover secured (driving position)

- 1 Flat cover
- 2 Tension rope
- 3 Hook
- 4 Eyelet
- 5 Holes
- 6 Aluminium extension

- ▶ Stretch the flat cover (Fig. 79 /1) over the aluminium extension (Fig. 79 /6).
 - ▶ Secure the flat cover on all sides by inserting the hooks (Fig. 79 /3) in the eyelets (Fig. 79 /4) or holes (Fig. 79 /5).
- The flat cover has been closed and secured.

Flat cover on steel mesh extension



Fig. 80 Flat cover (with steel mesh extension)

- 1 Flat cover
- 2 Steel mesh extension

- The handling of the flat cover (Fig. 80 /1) with the steel mesh extension (Fig. 80 /2) is essentially the same as with the aluminium extension.
- The hooks are hooked into the steel mesh walls on all sides.

Handling the tarpaulin cover



A - 050

Fig. 81 Tarpaulin cover

- 1 Flat cover
- 2 Tension rope
- 3 Staple

The tarpaulin cover can be optionally manufactured in the heights 1600 mm and 1800 mm.



Instructions for handling the tarpaulin cover / frame are provided in the operating instruction manual, "Trailers up to 3.5 to" General - Part 1.



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Fig. 82 Frame

- 1 Frame
- 2 Slat inserts
- 3 Stanchion

The frame (Fig. 82 /1) is inserted in the stanchions (Fig. 82 / 3) and the tarpaulin secured on the drop sides on all sides.

H-frame

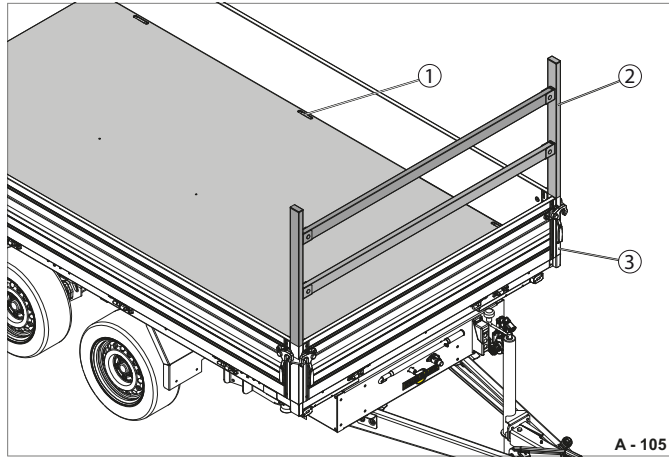


Fig. 83 H-frame mounted

- 1 Tie-down point
- 2 H-frame
- 3 Stanchion



Instructions for fitting / removing the H-frame are provided in the operating instruction manual, "Trailers up to 3.5 to" General - Part 1.

The H-frame (Fig. 83 /2) is inserted in the front stanchions (Fig. 83 /3) and screwed in place.

It is used for transporting and securing long load materials.

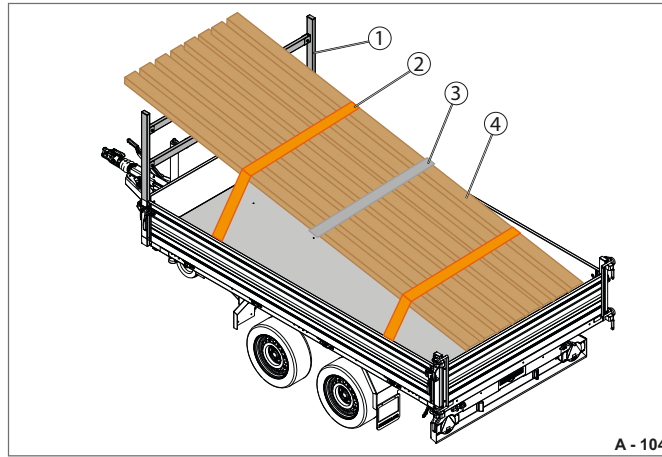


Fig. 84 Load securing with H-frame

- 1 H-frame
- 2 Securing the loading unit
- 3 Lashing strap
- 4 Load



Long loads must be secured as individual loading units.

It is not permitted to drive with loose loads on the H-frame.

- ▶ Use tension belts to tie down the load (Fig. 84 /4) to form an individual loading unit (Fig. 84 /2).
- ▶ Use tension belts to tie down the loading unit (Fig. 84 /3) to the tie-down points (Fig. 83 /1) on the cargo bed.

Handling loading ramps

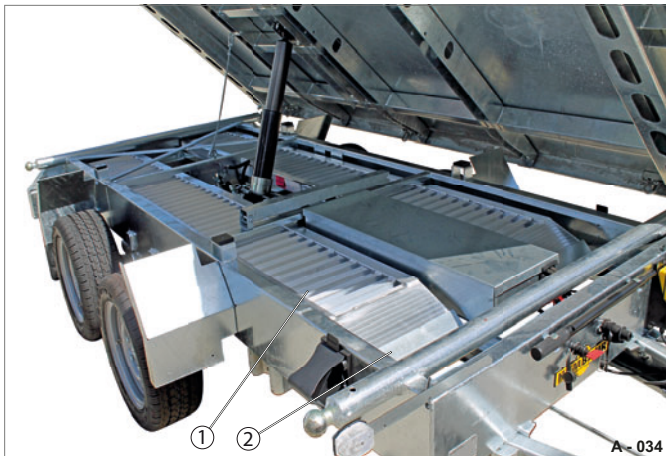


Fig. 85 Loading ramps in ramp slot

- 1 Loading ramps
- 2 Ramp stop

The loading ramps are made of aluminium and designed for the respective trailer type. The chequered surface increases safety.

The loading ramps are available in combination with telescopic props stands as an option.

The loading ramps are transported in the ramp slot while driving.



The max. carrying capacity of the loading ramps must be complied with!



Fig. 86 Type plate for loading ramps

WARNING

Loading ramps overloaded!

The loading ramps can be deformed.
The vehicle can fall off / tip over - crushing / impact risk!

- ▶ Please note the type plate with the max. load specifications.
- ▶ Comply with the max. values.

Max. values / carrying capacity	HTK 31-41
Drive-up angle max.	30% (approx.16°)
Single-axle trailer:	845 daN (Kp)
Tandem trailer:	
Axle load distribution	40% to 60%
Wheelbase 1 m	1405 daN (Kp)
Wheelbase 1.5 m	1405 daN (Kp)
Dimensioning	
Length	3050 mm
Width	400 mm
Weight per ramp	approx. 23 kg

Max. values/load capacity	HTK 27
Drive-up angle max.	30% (approx.16°)
Single-axle trailer:	? daN (Kp)
Tandem trailer:	
Axle load distribution	40% to 60%
Wheelbase 1 m	2600 daN (Kp)
Wheelbase 1.5 m	2950 daN (Kp)
Dimensioning	
Length	2650 mm
Width	? mm
Weight per ramp	approx. 19 kg

**WARNING****Loading ramps not secured!**

The loading ramps can slip off from the cargo bed. The vehicle may fall from the loading ramps – risk of impact/crushing!

- ▶ Before loading/unloading, check that the loading ramps are secured to the cargo bed.
- ▶ Note the warning label on the loading ramps.

**WARNING****Risk of loss of stability!**



The trailer could lose stability when being loaded / unloaded with vehicles and the load could tip over.

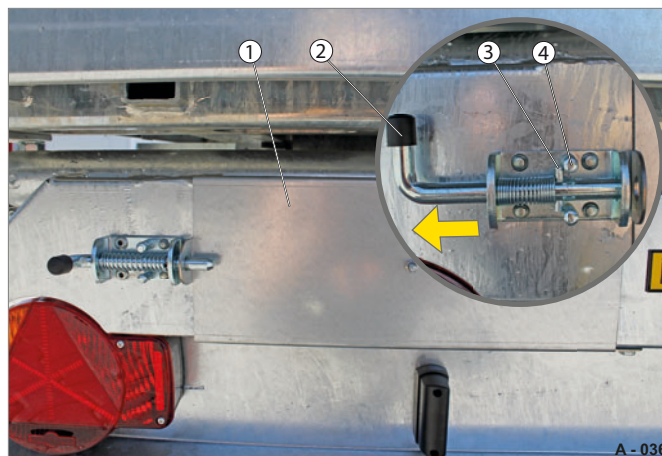
- ▶ Before using the loading ramps, extend the support legs and secure them.
- ▶ Only carry out loading / unloading on a solid and secure surface. Where necessary, place a firm support under the support legs.
- ▶ Keep people out of the danger area.

**CAUTION****Removing / positioning loading ramps!**

You can crush your fingers / hands / feet!

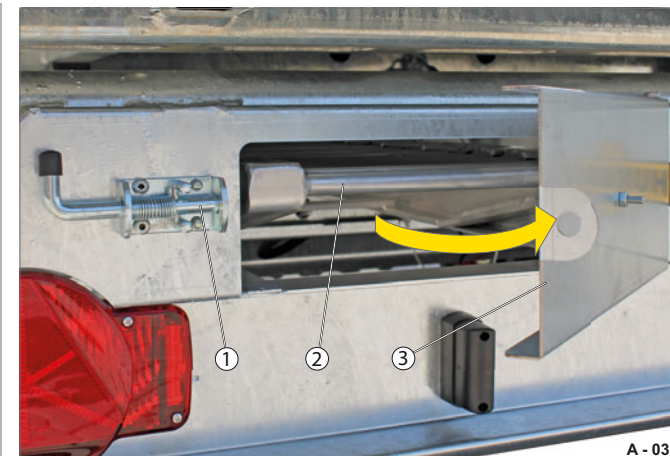


- ▶ Use  , .
- ▶ Remove and position the loading ramps carefully.
- ▶ Take hold of the loading ramps from the side with both hands.

Releasing the ramp slot cover**Fig. 87** Loading ramp slot closed

- 1 Ramp slot cover
- 2 Locking bolt
- 3 Securing pin
- 4 Plunger pins

- ▶ Pull out the locking bolt (Fig. 87 /2) and turn it by 90°.
- ▶ Use the securing pin (Fig. 87 /3) to lock the locking bolt in the locking pins (Fig. 87 /4).
- ▶ Release the ramp slot cover (Fig. 87 /1).

Opening the ramp slot cover**Fig. 88** Open the loading ramp slot

- 1 Locking bolt
- 2 Loading ramp
- 3 Ramp slot cover

- ▶ Swivel open the ramp slot cover (Fig. 88 /3) by approx. 90°.

Removing the loading ramps



Fig. 89 Pull out the loading ramps

- 1 Loading ramp
- 2 Ramp slot cover

- ▶ Take hold of the loading ramp (Fig. 89 /1) at the bottom.
- ▶ Use both hands to pull the loading ramps out of the ramp slot up to the limit stop one after the other – not completely.



Fig. 90 Lifting out loading ramps

- 1 Loading ramp

- ▶ Lift the end of the loading ramps (Fig. 90 /1) out of the ramp slot slightly.
- ▶ Slowly and carefully place the loading ramps on the ground upside down – do not drop.

Closing the ramp slot cover

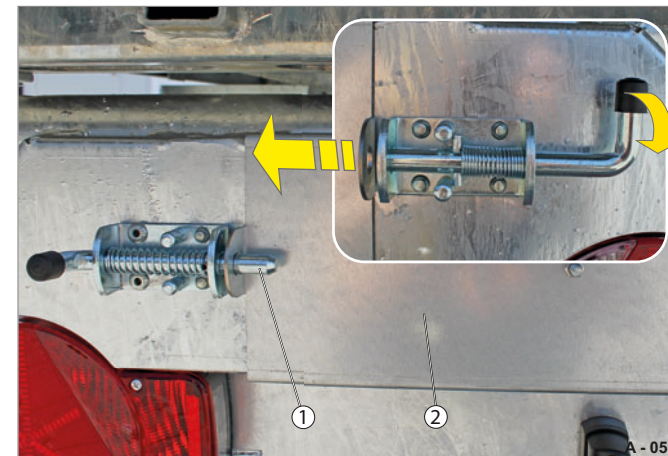


Fig. 91 Loading ramp slot closed

- 1 Locking bolt, secured
- 2 Ramp slot cover

- ▶ Close the two ramp slot covers (Fig. 91 /2) in turn.
- ▶ Turn the locking bolt (Fig. 91 /1) to the horizontal position.
The locking bolt automatically snaps into place (through the spring force).
The ramp slot cover of the loading ramp slot has been locked.

Lowering the telescopic prop stands

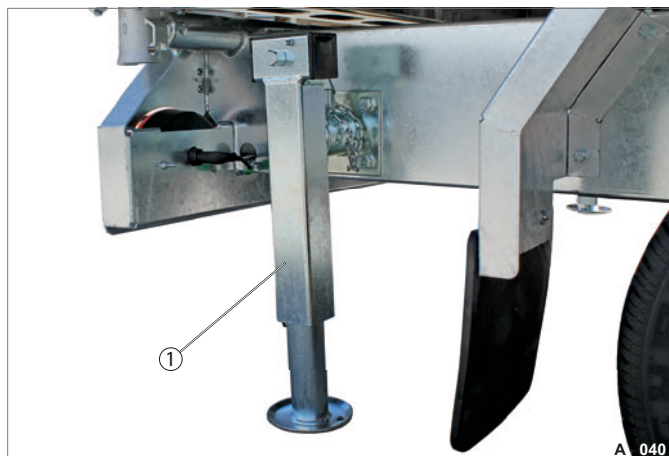


Fig. 92 Telescopic prop stand lowered

- 1 Telescopic prop stand

- ▶ Lower the telescopic prop stands (Fig. 92 /1)
- see "Operating the telescopic prop stands" on page 51.

Folding down the drop side

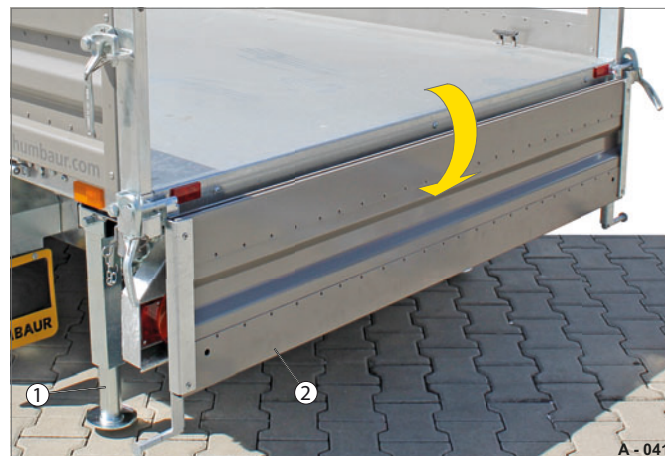


Fig. 93 Folding down the drop side

- 1 Telescopic prop stands
2 Rear drop side, folded down

- ▶ Release and fold down the rear drop side (Fig. 93 /2)
- see "Folding down" on page 65.

Carrying capacity

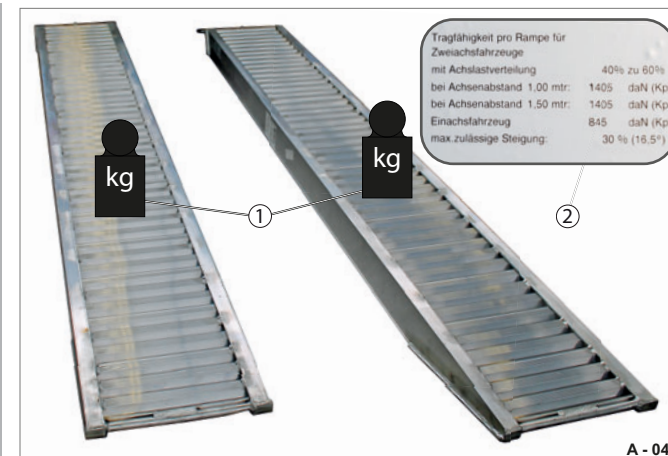


Fig. 94 Check the loading ramps

- 1 Carrying capacity / load limits
2 Type plate

- ▶ Check the loading ramps for distortions / cracking / deformation - defective loading ramps may not be used.
- ▶ Make sure that the load vehicle does not exceed the max. carrying capacity (Fig. 94 /1) of the loading ramps.
- ▶ Compare the max. values on the type plate (Fig. 94 /2) of the loading ramps.
Comply with the axle load distribution.

Preparing the loading ramps

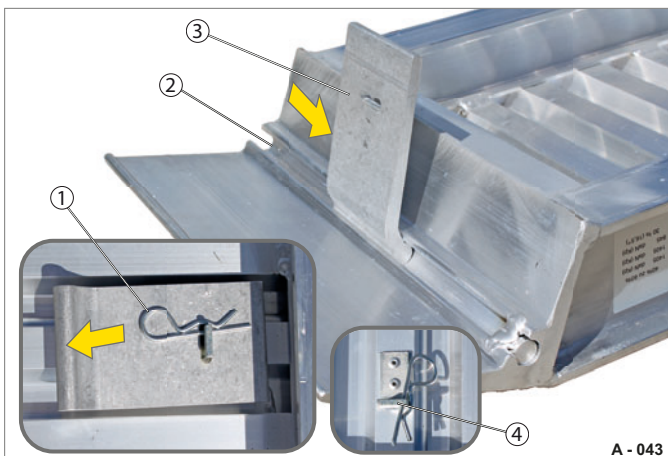


Fig. 95 Preparing the loading ramp

- 1 R-clip
- 2 Groove of the loading ramp
- 3 Safety latch
- 4 Retaining bracket

- ▶ Remove the R-clip (Fig. 95 /1).
- ▶ Slide the safety latch (Fig. 95 /3) into the groove of the loading ramp (Fig. 95 /2).
 - Make sure that it is correctly positioned (approx. in the middle) and pointing in the right direction.
- ▶ Insert the R-clip in the retaining bracket (Fig. 95 /4).
 - The loading ramps can now be positioned on the cargo bed.

Positioning the loading ramps

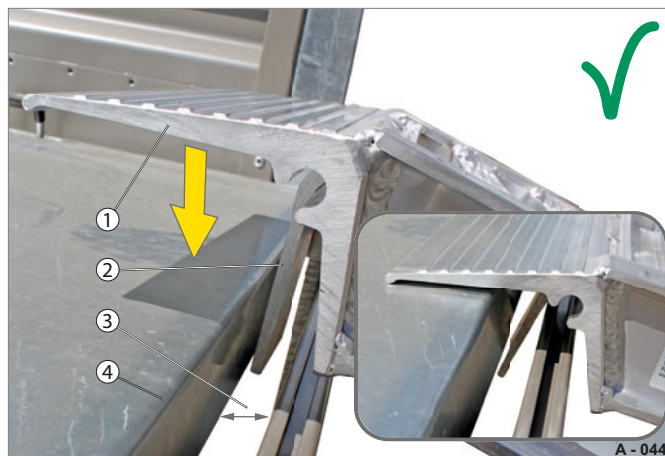


Fig. 96 Attaching the loading ramps

- 1 Loading ramp
- 2 Safety latch
- 3 Gap between the rear drop side / cargo bed
- 4 Edge of the cargo bed

- ▶ Lift the loading ramp (Fig. 96 /1) with both hands.
- ▶ Place the loading ramp on the edge of the cargo bed (Fig. 96 /4), so that the safety latch (Fig. 96 /2) is located in the gap (Fig. 96 /3) between the cargo bed and the rear drop side.



Fig. 97 Loading ramp incorrectly attached

- 1 Rear drop side
- 2 Loading ramp

WARNING

⚠ Loading ramps positioned on the rear drop side!

The rear drop side can fall down
- Risk of impact/crushing! The load vehicle could tip over - accident risk!

- ▶ Ensure that the loading ramp is not resting on the rear drop side.

- ▶ If required, pull the loading ramp (Fig. 97 /2) back slightly, so that the loading ramp is located behind the rear drop side (Fig. 97 /1).

Setting the track width

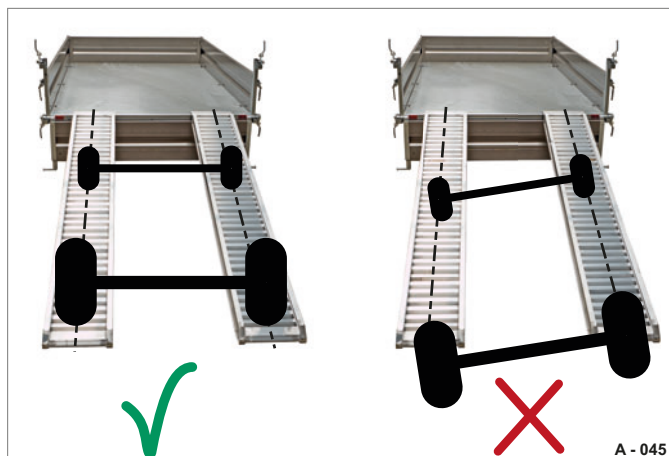


Fig. 98 Setting the track width



Fig. 99 Track width set correctly

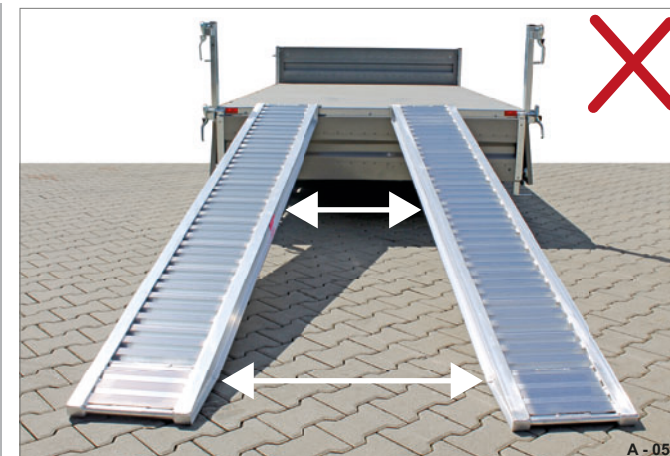


Fig. 100 Track width set incorrectly

**WARNING****Loading ramps positioned to incorrect track width!**

The load vehicle could fall from the loading ramps – risk of impact/crushing!

- ▶ Adjust the loading ramps to the correct track width before loading/unloading.

- ▶ Check the track width (Fig. 98) of the load vehicle.

- ▶ The wheels of the load vehicle must be able to drive onto the centre of the loading ramps.
- ▶ Adjust the loading ramps to the track width of the load vehicle.
- ▶ Align the vehicle straight (at a 90° angle) in front of the trailer / loading ramps.
- ▶ Centre the track.

Driving up the loading ramps

Driving up the loading ramps is only permitted if the driver has the wheels in direct view.

If the wheels cannot be seen directly, the loading ramps may only be used under the supervision of an assistant.



Abrupt stopping and re-starting when driving up the loading ramps must be avoided!

The loading ramps must be driven up slowly with a max. speed of 0.3 m / second.



WARNING



Restricted view

People may not be seen and be run over when reversing.

- ▶ Use the mirrors to correctly assess the danger area around the trailer.



- ▶ Have a second person direct you.



WARNING

Loading ramps not secured

The loading ramps could slip off the edge of the cargo bed and the load vehicle could tip off the loading ramps - crushing / impact risk!

- ▶ Before loading/unloading, check that the loading ramps are secured to the edge of the cargo bed.



Fig. 101 Driving up the loading ramps

- ▶ Before driving up the loading ramps, ensure that they are safely secured against slipping off.
- ▶ Slowly drive up the loading ramps in a straight line - not at an angle from the side.

Walking on the loading ramps



Fig. 102 Walking on the loading ramps



CAUTION



Walking on the loading ramps!

The loading ramps may be dirty and wet. You may slip – risk of falling!



- ▶ Use .
 - ▶ Walk on the loading ramps very carefully and slowly.
-
- ▶ Do not jump off the trailer after driving onto it.

Stowing away loading ramps



Fig. 103 Lifting the loading ramp

- 1 Loading ramp

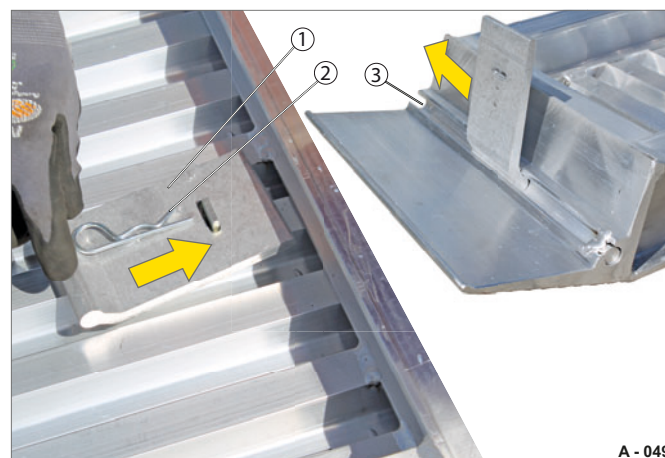


Fig. 104 Stowing away the safety latch

- 1 Safety latch
2 R-clip
3 Groove of the loading ramp

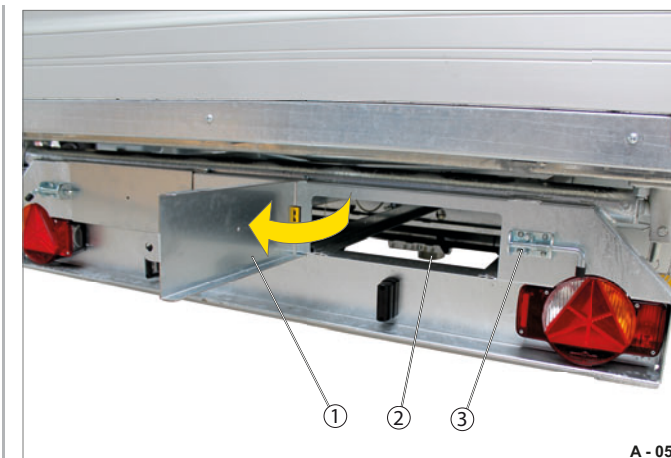


Fig. 105 Opening the ramp slot cover

- 1 Ramp slot cover
2 Ramp slot
3 Locking bolt

**WARNING****Driving with unsecured loading ramps**

The loading ramps could be thrown out of the loading ramp slots - accident risk!

- ▶ Before setting off, make sure that the flaps of the loading ramp slots are locked with the loading ramps inserted.



The loading ramp slots are only designed for the transport of loading ramps.

Carrying other objects in loading ramp slots is prohibited!

- ▶ Lift the loading ramp (Fig. 103 /1) from the cargo bed.
- ▶ Lay it slowly and safely on the ground upside down.

- ▶ Slide the safety latch (Fig. 104 /1) out of the groove of the loading ramp (Fig. 104 /3).
- ▶ Secure the safety latch with the R-clip (Fig. 104 /2).
The loading ramps can be stowed away in the ramp slot.

- ▶ Fold up the rear drop side (Fig. 93 /2) - see "Closing" on page 66.
- ▶ Release and open the ramp slot cover (Fig. 105 /1).

Inserting the loading ramps



Fig. 106 Inserting the loading ramps

- 1 Ramp slot
- 2 Loading ramp

- ▶ Position the loading ramp (Fig. 106 /2) in the ramp slot (Fig. 106 /1) with the underlying safety latch located in front.
- ▶ Push the loading ramp completely into the ramp slot from the rear.
The loading ramps are held in the ramp slot at the front.

Closing the ramp slot cover

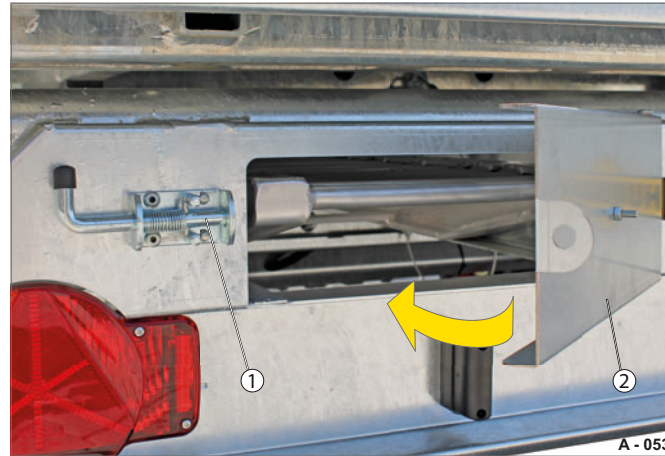


Fig. 107 Securing the loading ramps

- 1 Locking bolt
- 2 Ramp slot cover

- ▶ Close the ramp slot cover (Fig. 107 /2).
- ▶ Swivel the locking bolt (Fig. 107 /1) to the horizontal position.
The locking bolt snaps into place.

Position for driving

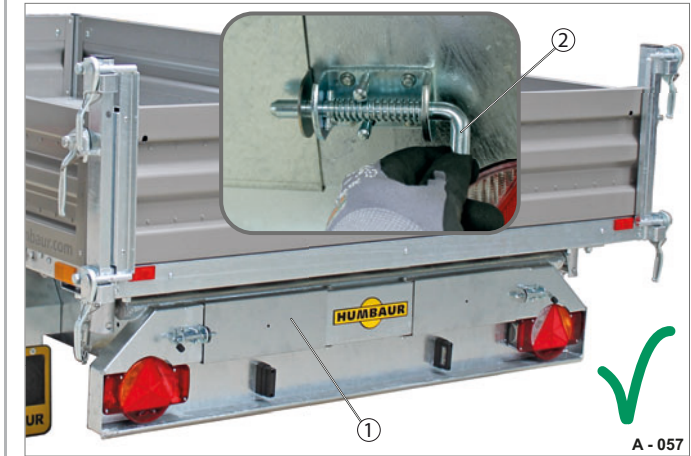


Fig. 108 Ramp slots secured

- 1 Ramp slot cover
- 2 Locking bolt

- ▶ Before setting off, ensure that both ramp slot covers (Fig. 108 /1) have been closed and secured with the locking bolt (Fig. 108 /2).

General information

Many accidents are attributable to deficient load securing.

Correctly secured loads prevent:

- Personal injury
- Material damage to the load
- Material damage to trailers
- Unnecessary waiting times in traffic checks

Legal foundations / Statutory provisions

Load securing is prescribed by the legislature in Germany in the following regulations and legislation:

- StVZO (German Licensing Regulations), Section 31
- StVO (Road Traffic Regulations) Sections 22/23
- Accident Prevention Regulations for Vehicles (VBG 12)
- HGB (German Commercial Code), Section 412

On this basis, the following persons are responsible for load securing:

- Driver
- Owner
- Loader
- Consignor
- Freight company

Further information / practical tips can be found in the brochure BGI 649 "Load Securing on Vehicles":
A manual for operators, schedulers, driving and loading personnel.

Guidelines of the VDI 2700 series

These represent the state of the art of the accepted engineering standards.

- VDI 2700 Securing of loads on road vehicles
- VDI 2700, Sheet 2, Tie-down forces
- VDI 2700, Sheet 4, Load distribution plan
- VDI 2700, Sheet 6, Part-load consignment
- VDI 2700, Sheet 7, Safety of loads in combined transport

Physical foundations

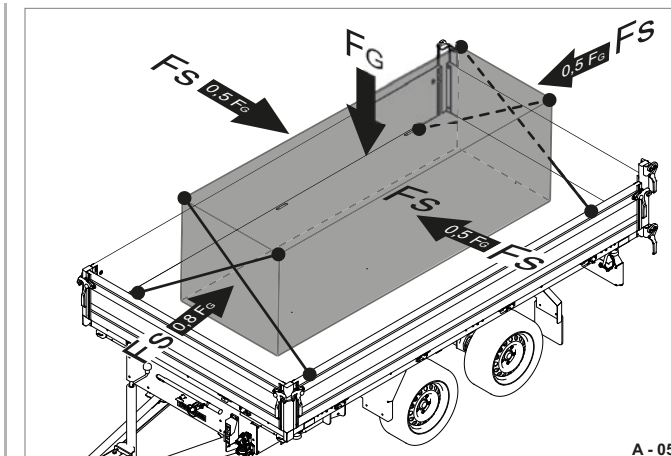


Fig. 109 Maximum inertia forces

Resulting from the dynamics of vehicle movement in road traffic

F_S Load securing force,
F_G Inertial force of the load

Forces caused by pulling away, braking and changing direction act on the load during driving.

These dynamic driving forces cause the load to slide if it is inadequately secured and unstable goods to tilt.

An appropriately adapted driving style minimises the arising forces and wear and always provides an increase in safety.

Example:

- Inertia force $F_G = 2,000 \text{ daN}$
- Maximum forward acceleration = 0.8 g
($1 \text{ g} = \text{gravitational acceleration } 9.81 \text{ m/s}^2$)

Result:

$F_G \text{ forwards} = 2,000 \text{ daN} \times 0.8 \text{ g} = 1,600 \text{ daN (kg)}$

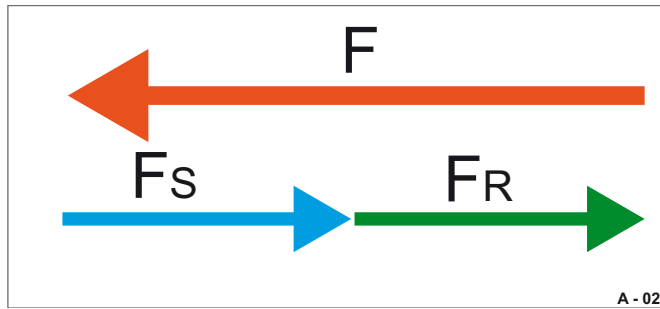
The actually required load securing force F_S is reduced by the amount of frictional force F_R (between the load and the trailer floor) in the case of stable load materials.

Further information on friction-coefficient matchings can be found in the VDI 2700 guideline.

All friction-coefficient matchings apply to clean surfaces.

Tab. 1 Sample calculation

Inertia force F
Force which counteracts a change in the state of movement



Tab. 2 Inertia force F

Load securing force F_S :

Force which has to be absorbed by the tie-down equipment or the trailer body

Frictional force F_R : Sliding friction coefficient x weight force

Calculation formula: $F_S = F - F_R$

Example:

- Inertia force $F_G \text{ forwards}$: $1,600 \text{ daN}$
- Friction coefficient $\mu_0 = 0.3$ (screen floor / pallet)
- **Frictional force $F_R = 0.3 \times 2,000 \text{ daN} = 600 \text{ daN}$**

Actually required load securing force

$F_S = 2,000 \text{ daN} - 600 \text{ daN} = \underline{1,400 \text{ daN (kg)}}$.

Tab. 3 Required load securing force (F_S)

Types of load securing

Form-fitting load securing

The HTK trailer in box form with drop sides can be used for form-fitting load securing by arranging the load in a certain way.

Providing:

The dimensions of the load materials and bodies match. Otherwise the gaps arising from e.g. pallets or padding have to be filled in.



Form-fitting load securing is not possible when transporting a large number of different goods.

These load materials must be secured in a way which is suitable for practical application according to DIN EN 12195 and the VDI guidelines via a large number of tie-down points according to DIN EN 12640.

Force-fitting load securing

The direct lashing and tie-down lashing of the load with tie-down equipment is covered by the term "force-fitting load securing".

Direct lashing as "oblique and diagonal lashing" is included in the form-fitting securing processes as a result of the substantially higher tie-down forces which can be obtained compared with tie-down lashing.

Prerequisite:

Tie-down points are provided at the required points on the load and trailer.

Tie-down lashing is the most common type of load securing. In this case, the required securing force is obtained solely by increasing the friction force.

The load is "pressed" on the cargo bed by means of tie-down equipment (e.g. lashing straps).

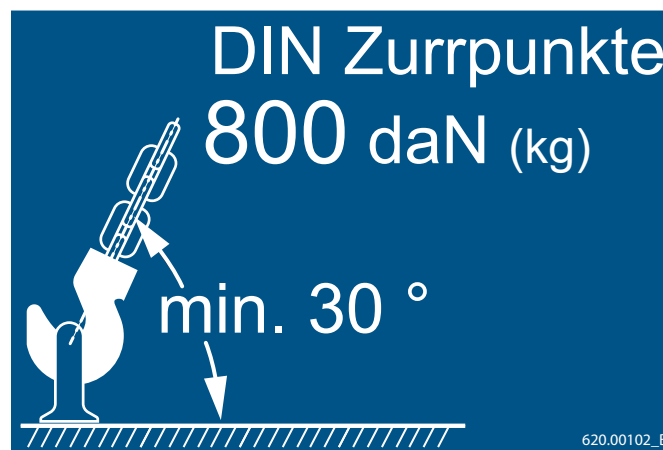


Fig. 110 Example of a lashing point sign



WARNING



Impermissible tensile loads / lashing angles

Tie-down equipment could break / tear.
The load is inadequately secured - accident risk!
► Comply with the maximum stated values for the force specifications.

- Use suitable tie-down equipment.
The max. possible tension values are stated on the tie-down equipment.
- Do not tie down with the tensioning equipment at an angle of less than 30°. Attach the fixing point to the top of the load materials as far as possible.

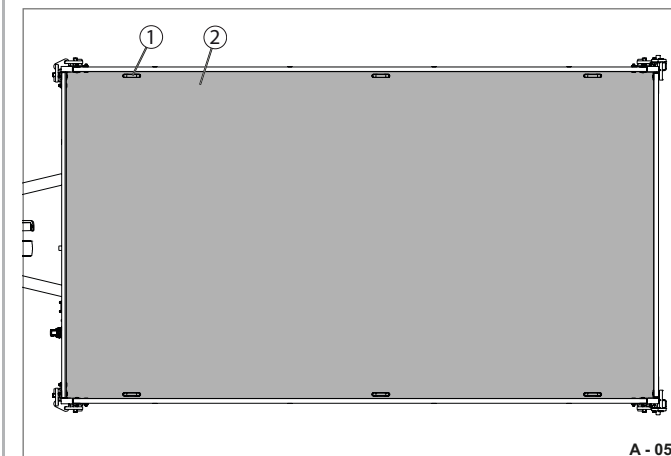


Fig. 111 Tie-down points arrangement

- 1 Tie-down brackets (3x on the right, 3x on the left)
- 2 Cargo bed

NOTICE

Exceeding the tie-down forces / falling below the lashing angle

Tie-down points could break.

- Note the stickers on the tie-down points.
- Comply with the following specifications:

- Maximum tension load of the tie-down points on the cargo bed: 800 daN (kg) per tie-down ring.

- Only use suitable / tested tie-down equipment.

Tie-down points



A - 106

Fig. 112 Overview of tie-down points

- 1 Cargo bed
- 2 Tie-down bracket

The retractable tie-down brackets finish flush with the cargo bed.

Dirt cannot enter the tie-down point openings when tipping bulk goods.



A - 086

Fig. 113 Tie-down point lifted out

- 1 Tie-down bracket



A - 087

Fig. 114 Tie-down point retracted

- 1 Tie-down bracket

Handling the tie-down points



A - 107

Fig. 115 Tie-down points secured

- 1 Tie-down bracket
- 2 Holder

▶ Press the tie-down bracket (Fig. 115 /1) out upwards and secure it in the holder (Fig. 115 /2).

Tie-down bracket remains in the vertical position.

▶ Retract unused tie-down points.



A - 109

Fig. 116 Tie-down points retracted



6

Electrical system

Lighting system / Electrical supply



Take note of the safety instructions and instructions for the electric system in the operating instruction manual, "Trailers up to 3.5 to" General Points – Part 1.

The electrical lighting system operates with 12 V as standard.



WARNING

Failure of electrical functions

The road handling and the braking distance deteriorate - accident risk!

- ▶ Check that all electrical connections have been assembled before driving off.
- ▶ Check the condition of the electrical plugs and cables before driving off.
- ▶ Do not drive with cracked or defective electrical connections.



E - 001

Fig. 1 Lights at the front

- 1 Electro-hydraulic equipment (optional)
- 2 Front reflector



Refer to the category "Electro-hydraulic equipment" on page 36 for operation of the electro-hydraulic equipment.



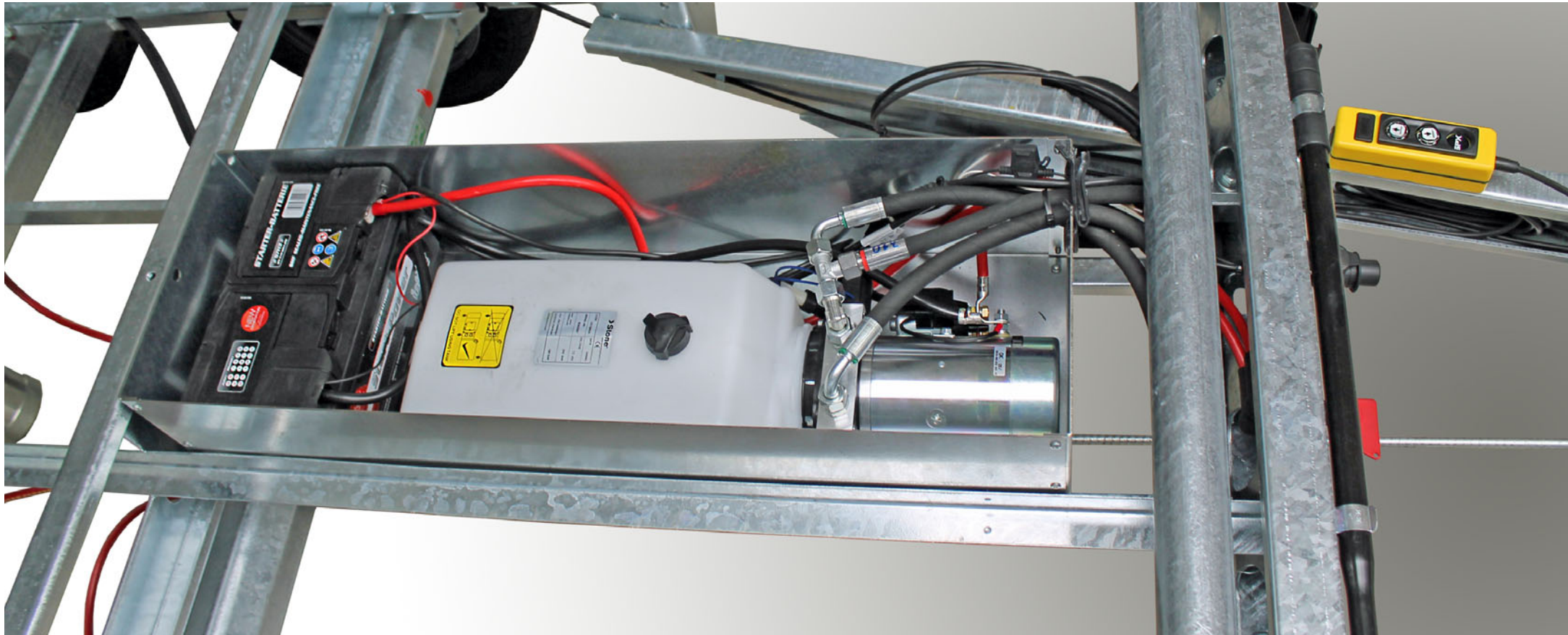
Refer to the category "Electro-hydraulic equipment" on page 114 for maintenance of the electro-hydraulic equipment.



E - 002

Fig. 2 Lights at the rear

- 1 Side reflector / yellow reflector
- 2 Tail light
- 3 Rear reflector / red reflector
- 4 Number plate light



7

Testing, care and maintenance

Trailers must be inspected by a competent / qualified specialist for their condition for safe operation as and when required, but at least once a year.

This also applies to all components which are used for the load securing according to VDI 2700 or / and EN 12642.

All important mechanical components must be inspected and maintained at regular intervals for safety reasons.

These include:

- Axles
- Brakes
- Bolts
- Pipe connections
- Attachments
- Switch-off and securing mechanisms
- Electrical system / electro-hydraulic system



- Comply with the accident prevention regulations for all maintenance work.
- Comply with the environmental protection guidelines.
- Switch off the engine of the towing vehicle prior to starting maintenance work.
- Ensure that the electro-hydraulic equipment has not been switched on.
- Damaged tie-down points may not be repaired on any account, but must be exchanged for new parts.
- Damaged and non-functioning trailer parts must be exchanged for original spare parts of Humbaaur GmbH.



Note the maintenance regulations in the operating instruction manual "Trailers up to 3.5 to" General – Part 1.

Certain maintenance work may only be carried out by trained and qualified personnel.

The prescribed maintenance intervals must be complied with.

Proof of the HU/SP

The form is titled "16 Inspektionsnachweis" and includes fields for "FIN: WHD" and "Typ:". It contains six inspection slots for distances: Übergabe - Service, 1.000 km-Inspektion, 5.000 km-Inspektion, 10.000 km-Inspektion, 15.000 km-Inspektion, and 20.000 km-Inspektion. Each slot has a "Stempel Fachwerkstatt" (stamp) and a "Datum" (date) field. The bottom row also includes "Unterschrift" (signature) fields. A note at the bottom of each slot indicates the next inspection interval: "spätestens 1/2 Jahr nach letzter Inspektion". The reference code "W - 028" is located at the bottom right.

Fig. 1 Proof of inspection (in operating instruction manual, "Trailers up to 3.5 t" Part 1)

HU = General inspection
 SP = Safety inspection

- ▶ Enter the implemented HU/SP in the proof of inspection (Section 29, sub-section 12 of the StVZO (German Licensing Regulations)).
- ▶ Keep the latest inspection report (HU) and the latest test record (SP) at least until the next inspection / test (Section 29, sub-section 10 of the StVZO).
- ▶ Keep the inspection log book as proof until the trailer is finally taken out of service (Section 29, sub-section 13 of the StVZO).

Maintenance of axles / wheels

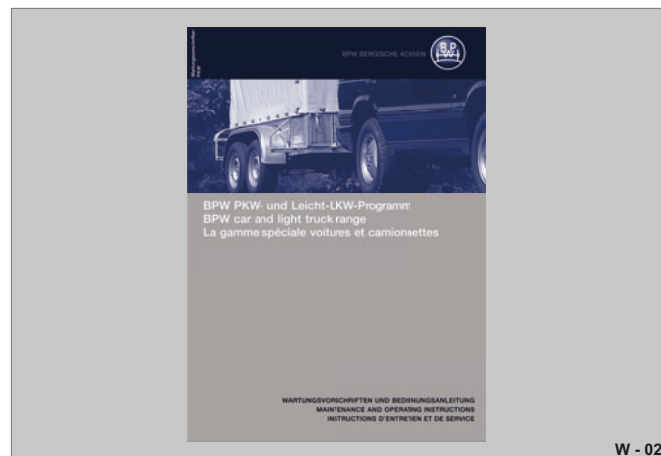


Fig. 2 Example: Operating instruction manual for axles

- ▶ Carry out the prescribed visual inspections and maintenance work or have them carried out by qualified specialist workshops.
- ▶ Have the inspections documented in the service booklet.

Overrun hitch



Fig. 3 Example: Operating instruction manual for drawbar

- ▶ Carry out the prescribed visual inspections and maintenance work or have them carried out by qualified specialist workshops.
- ▶ Have the inspections documented in the service booklet.

Checking the tyres



Fig. 4 Checking the wheels / tyres

- 1 Steel rim
- 2 Tyres (as selected by the manufacturer)

Tyre type	p _{max.} in bar
155 / 80 R13	3.0
175 / 70 R13	3.0
185 / 60 R12C	6.5
185 / 65 R14	3.0
185 R14C	4.5
185 / 65 R15	3.0
195 / 50 R13C	6.5
195 R14C	4.5
195 / 65 R14	3.0
195 / 65 R15	3.0

Tab. 1 Tyre pressure / tyre size

- ▶ Please use the correct tyre pressure as specified in this table.

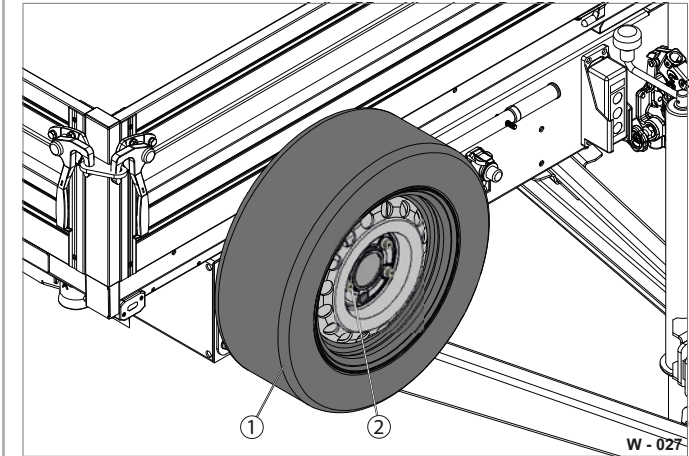


Fig. 5 Check the spare wheel attachment

- 1 Spare wheel
- 2 Spherical collar nut

- ▶ Check the tyre pressure / tread depth on all wheels incl. the spare wheel (Fig. 5 /1) on a regular basis and before long journeys.
- ▶ Use a torque wrench (80 Nm) to check that the spherical collar nuts (Fig. 5 /2) of the spare wheel holder are secure.

Using the maintenance brace

**CAUTION****Going under a loading bridge**

You can hit your head.

- ▶ Move carefully when you are under a raised loading bridge - no hurried / quick movements

**WARNING****Working under an unsecured cargo bed!**

The cargo bed could drop in an uncontrolled manner - risk of impact/crushing!

People may be crushed.

- ▶ Before working under the cargo bed, make sure that it has been properly secured with the maintenance brace.
- ▶ If there is no maintenance brace, secure the cargo bed with lifting equipment, e.g. a crane.



- ▶ Keep people away from the danger area during maintenance.



The loading bridge must be secured with a maintenance brace before carrying out maintenance work.

The maintenance brace is swivel-mounted on the chassis.

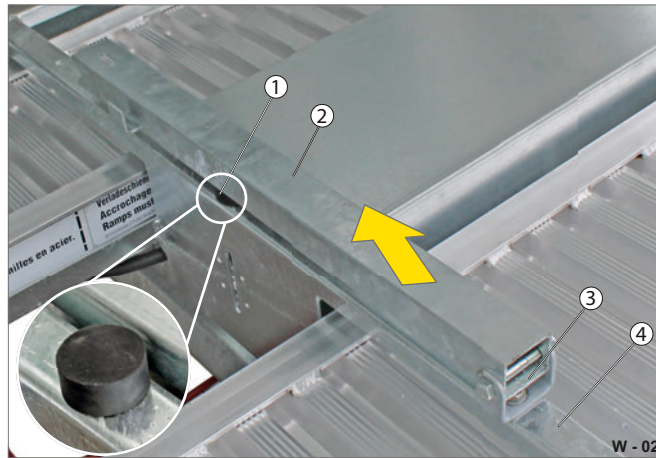


Fig. 6 Maintenance brace in the driving position

- 1 Support, rubber
- 2 Maintenance brace
- 3 Fastening bracket
- 4 Chassis

- ▶ Tip the loading bridge (Fig. 9 /1) to the rear / to the side.
- ▶ Fold the maintenance brace (Fig. 6 /2) up vertically.

Supporting the loading bridge at the side

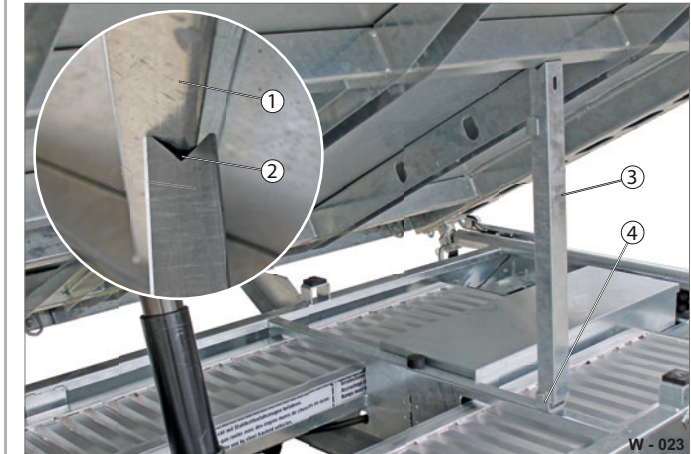


Fig. 7 Cargo bed supported at the side

- 1 Lateral bracing
- 2 Notch
- 3 Maintenance brace
- 4 Fastening bracket

- ▶ Tip the loading bridge (Fig. 9 /1) slowly on to the maintenance brace (Fig. 7 /3), so that the lateral bracing (Fig. 7 /1) engages in the notch (Fig. 7 /2). The loading bridge has been mechanically secured against falling down.

Supporting the loading bridge at the rear

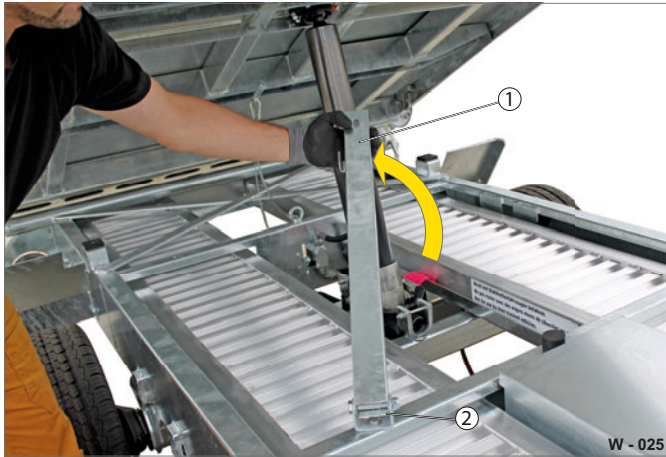


Fig. 8 Swivel the maintenance brace

- 1 Maintenance brace
- 2 Fastening bracket

- ▶ Fold the maintenance brace (Fig. 8 /1) upwards.
- ▶ Swivel the maintenance brace by 90°.

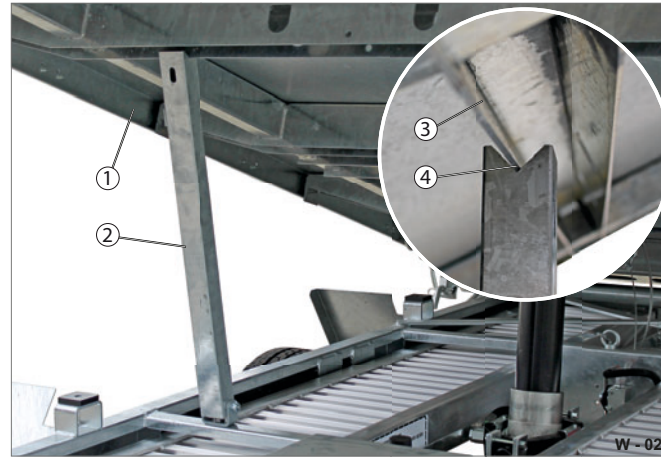


Fig. 9 Cargo bed supported at the rear

- 1 Loading bridge
- 2 Maintenance brace
- 3 Lateral bracing
- 4 Notch

- ▶ Tip the loading bridge (Fig. 9 /1) slowly on to the maintenance brace (Fig. 9 /2), so that the lateral bracing (Fig. 9 /3) engages in the notch (Fig. 9 /4). The loading bridge has been mechanically secured against falling down.

Parking the maintenance brace

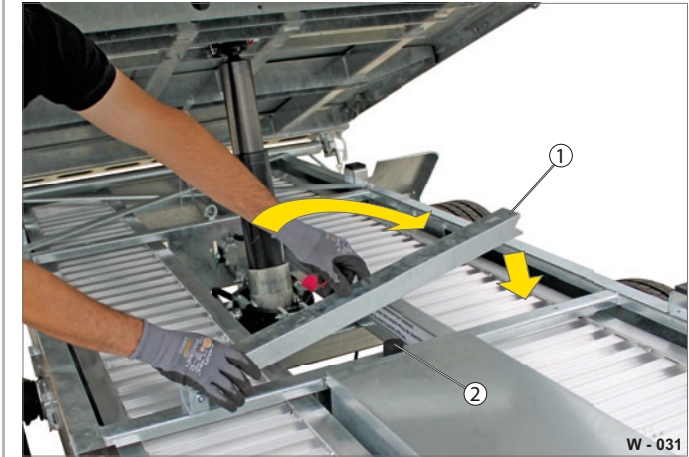


Fig. 10 Swivel the maintenance brace

- 1 Maintenance brace
- 2 Support

- ▶ Swivel the maintenance brace (Fig. 10 /1) by 90°.
- ▶ Place the maintenance brace on the support (Fig. 10 /2). The maintenance brace is in the driving position (see Fig. 6 on Page 109).

Telescopic cylinder

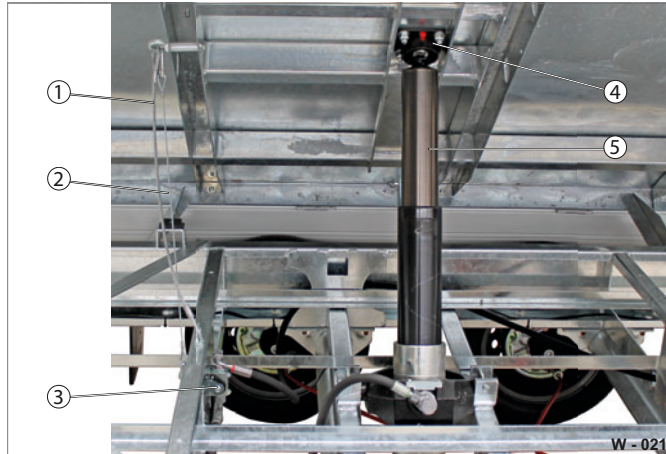


Fig. 11 Telescopic cylinder components

- 1 Securing cord
- 2 Switch-off cord (for electro-hydraulic equipment)
- 3 Switch-off valve/mechanism
- 4 Top bearing
- 5 Telescopic cylinder

- ▶ Check the telescopic cylinder (Fig. 11 /5) for leaks (oil loss) and firm seating in the lower and upper bearings (Fig. 11 /4).
- ▶ Clean off any oil that has leaked from the hydraulic components.
- ▶ Immediately repair any leaks
- environmental pollution!

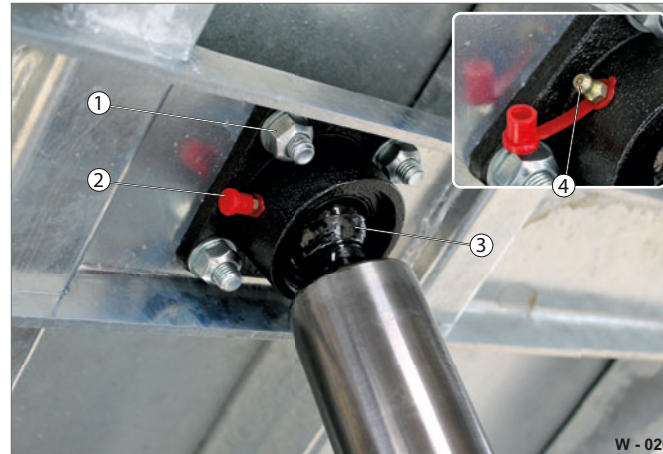


Fig. 12 Bearing at the top on the loading bridge

- 1 Screw connection
- 2 Grease nipple cap
- 3 Ball
- 4 Grease nipple

- ▶ Clean the top and bottom bearing points with a clean cloth.
- ▶ Open the grease nipple cap (Fig. 12 /2).
- ▶ Grease the ball (Fig. 12 /3) on the grease nipple (Fig. 12 /4).
- ▶ Remove any excess grease.
- ▶ Place the grease nipple cap on the grease nipple.
- ▶ Ensure that the screw connections (Fig. 12 /1) are secure.

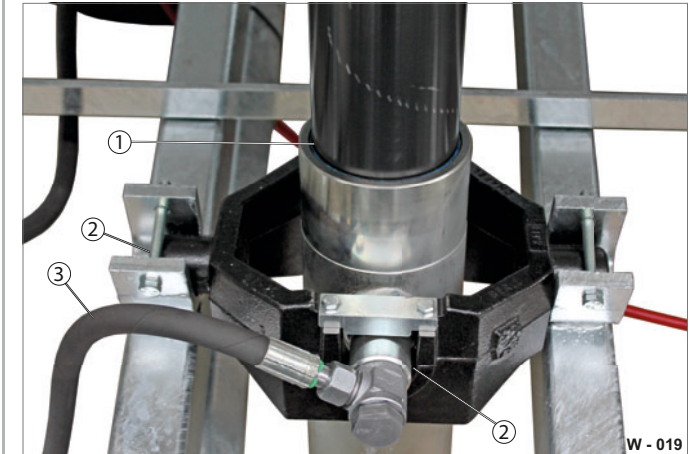


Fig. 13 Bearing underneath on the chassis

- 1 Wiper / seal
- 2 Bearing cup
- 3 Hydraulic hose

- ▶ Grease the bearing cups (Fig. 13 /2).
- ▶ Check the hydraulic hoses (Fig. 13 /3) for cracks / deformation.
- ▶ Have the hydraulic hoses replaced by qualified personnel after about 6 years.

Switch-off / securing mechanisms



Fig. 14 Top connection

- 1 Securing cord
- 2 Switch-off cord
- 3 Screw connection with eyelet
- 4 Carabiner

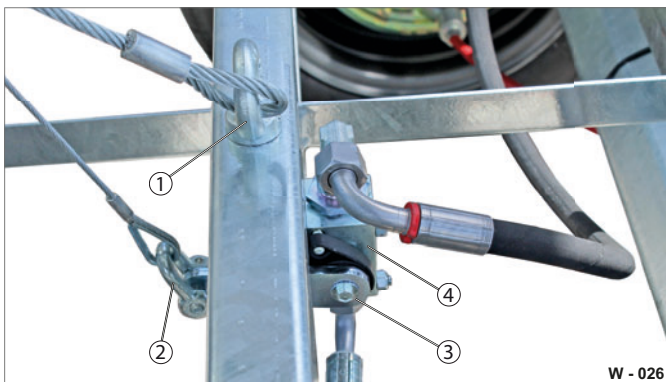


Fig. 15 Bottom connection

- 1 Eyelet on the chassis
- 2 Connection on the switch-off lever
- 3 Switch-off lever
- 4 Switch-off valve

The stroke limiter of the loading bridge is maintenance-free.

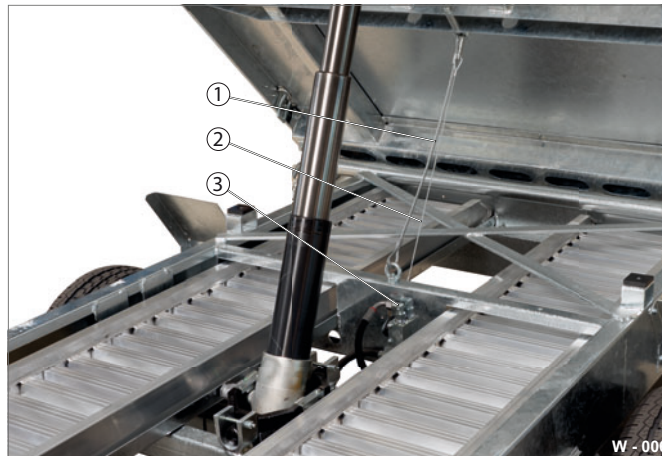


Fig. 16 Loading bridge tipped to the rear

- 1 Securing cord
- 2 Switch-off cord
- 3 Switch-off lever / valve



The stroke of the tilting loading bridge is preset in the factory. Unauthorised adjustment of the stroke limitation is not permitted!

Maintenance and repair work on the switch-off and securing mechanisms may only be carried out by trained and qualified personnel.

- ▶ Replace any damaged components if required.

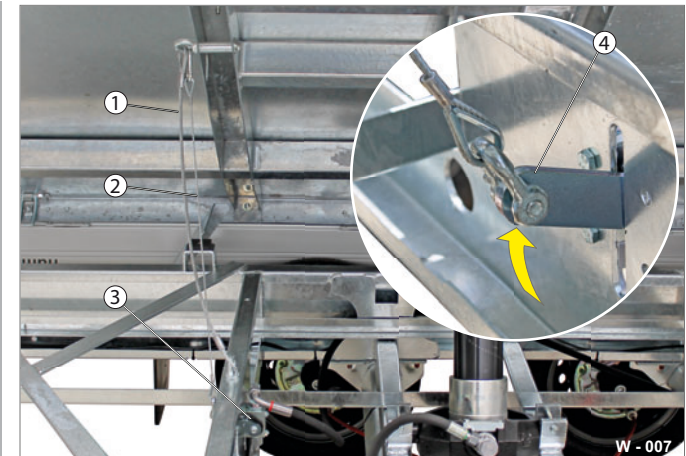


Fig. 17 Loading bridge tipped to the side

- 1 Securing cord
- 2 Switch-off cord
- 3 Valve
- 4 Switch-off lever



The loading bridge must be secured with a maintenance brace before carrying out maintenance / repair work.

- ▶ Tip the loading bridge to the right / left or to the rear.
- ▶ Check that the switch-off lever switches off the stroke of the loading bridge via the switch-off cord (Fig. 17 /2). (Fig. 17 /4).
The securing cord (Fig. 17 /1) may not be used to limit the stroke of the loading bridge.

Tilting bearing

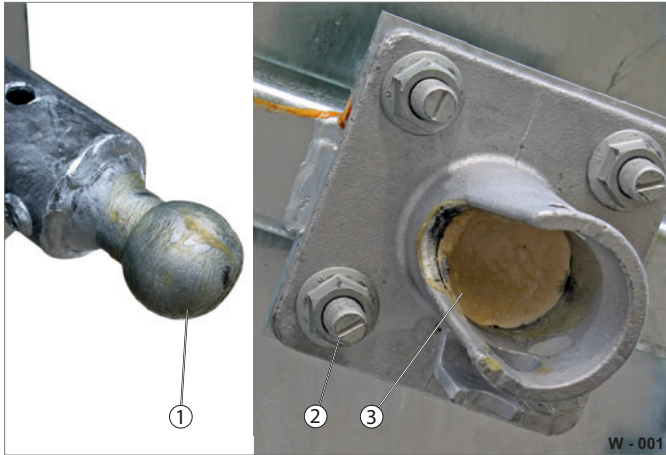


Fig. 18 Tilting bearings

- 1 Tilting bearing ball
- 2 Screw connection
- 3 Insert, plastic

The tilting bearings (Fig. 18) must be inspected for dirt accumulation and wear and secure attachment of the screw connection at regular intervals depending on the level of use and operating environment of the trailer.



A visual inspection and, where required, cleaning and lubrication of the tilting bearings must be carried out at least every 6 months.

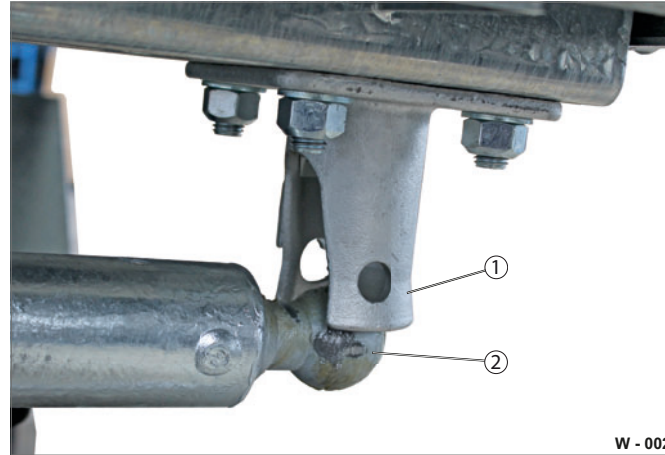


Fig. 19 Tilting bearings

- 1 Tilting bearing cup
- 2 Tilting bearing ball

- ▶ Tip the cargo bed to the right and left or to the rear.
- ▶ Carry out a visual inspection.
- ▶ Remove any dirt particles, e.g. sand, twigs, etc.
- ▶ Clean the tilting bearing ball (Fig. 19 /2) and the tilting bearing cup (Fig. 19 /1) from the inside with a clean cloth.
- ▶ Lubricate the tilting bearing ball and the insert (Fig. 18 / 3) in the tilting bearing cup with grease.




Fig. 20 Tilting bearing secured

- 1 Tilting bearing cup
- 2 Plug pin

- ▶ Clean the plug pin (Fig. 20 /2) with a clean cloth.
- ▶ Check that the plug pin is not worn.
- ▶ Tip the cargo bed to the right and left.
- ▶ Check that the tipping process is functioning correctly. The tilting bearing ball must be correctly located in the tilting bearing cup (Fig. 20 /1).


Safety instructions / warnings

 The electro-hydraulic equipment (motor, hydraulic tank, hoses, electric cables, and connections) is low-maintenance.


However, the equipment needs to be regularly checked for damage, ageing, fracture, and material fatigue.


Servicing work must only be carried out by qualified specialists.

The electro-hydraulic equipment for powered operation of the loading bridge is subject to the Machinery Directive 2006/42/EC.

 The electro-hydraulic equipment may only be operated by trained personnel!

Maintenance / repair work on the electro-hydraulic equipment may only be carried out by trained and qualified personnel in a specialist workshop!

 Read and follow the safety instructions of the battery manufacturer.

 Batteries are subject to the EU Directive 2006/66/EC and can be returned free of charge to the manufacturer.

The utmost of caution must be exercised when removing/replacing the supply battery!

NOTICE

Using the high-pressure cleaner!

The electro-hydraulic equipment and batteries or hydraulic hoses could be damaged if cleaned with a high-pressure cleaner.

- ▶ Be especially careful when cleaning the trailer with pressure washers.
- ▶ Do not aim the water stream directly at the electro-hydraulic equipment / hydraulic hoses / electrical cables / batteries.

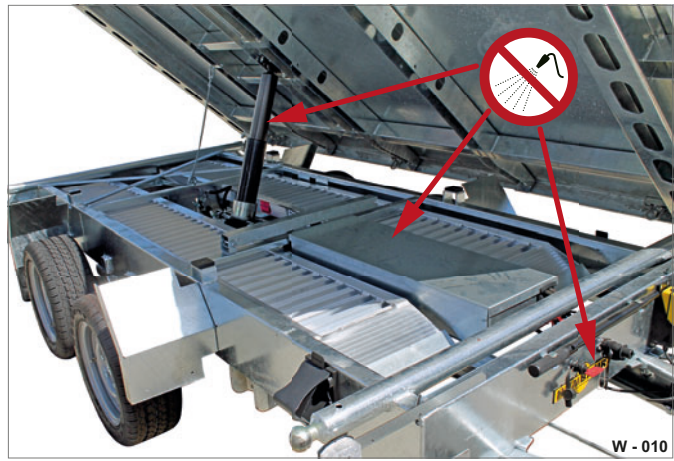







Fig. 21 Cleaning sensitive components / chassis


 Batteries and rechargeable batteries are waste which has to be specially disposed of. They may not be disposed of in household waste or in the environment under any circumstances.

 Hydraulic oil may not enter the environment! Leaks must be repaired immediately!


WARNING


 **Danger when handling batteries!**
The battery can explode as a result of spark generation or short circuits.

- ▶ Use  , .
- ▶ Avoid short circuits and the formation of sparks. - Do not place any tools / objects on the batteries.
- ▶ Cover the terminals of the batteries prior to starting work on batteries.


 Do not smoke and keep naked flames away.

WARNING


 **Leaking battery acid!**
Battery acid is corrosive, and if it comes into contact with you there is a danger of severe injury.

 You must consult a doctor immediately in the event of contact.

WARNING

 **Hot batteries!**
Bridged batteries can become hot - burn hazard!
▶ Allow the battery to cool down before you start working on it.

WARNING

 **Burn hazard!**
Unintentionally bridged batteries are hot!

- ▶ Eliminate the short-circuit if possible.
- ▶ Allow the batteries to cool down before you start maintenance and servicing work.

WARNING

Leaking hydraulic oil / lines under pressure
Hydraulic oil escaping under pressure can cut the skin / cause skin irritations!

▶ Before commencing maintenance work on the hydraulic system, ensure that the lines are not under pressure and / or they have been disconnected from the tractor unit.

▶ Use  , .

Opening the cover

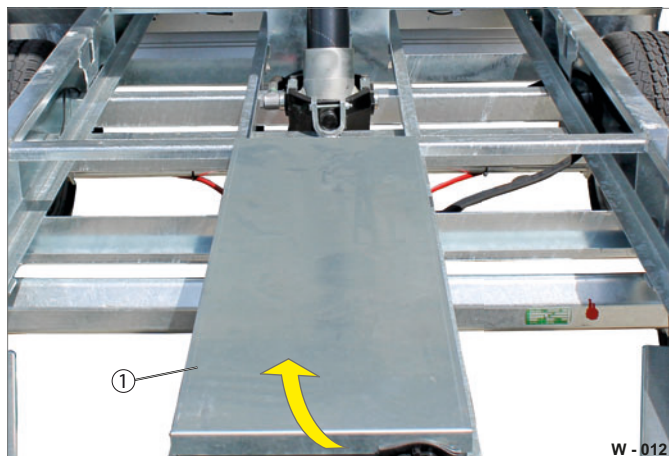


Fig. 22 Cover of the electro-hydraulic equipment

- 1 Cover

- ▶ Pull the cover (Fig. 22 /1) upwards.
- ▶ Put the cover somewhere where it is safe from damage.

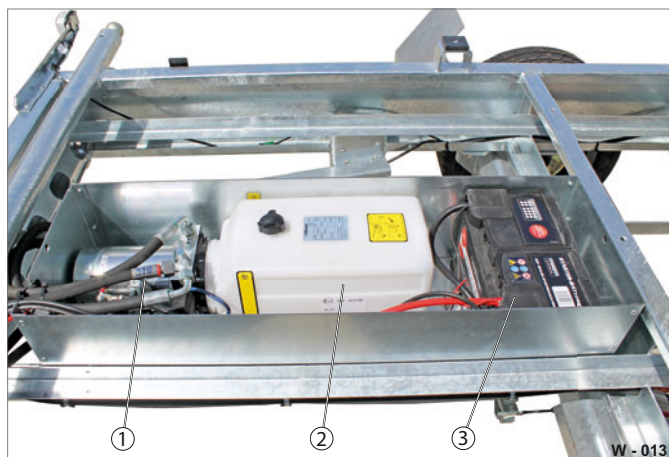


Fig. 23 Cover removed

- 1 Electric hydraulic pump
- 2 Oil container
- 3 Supply battery

Checking / changing the hydraulic oil

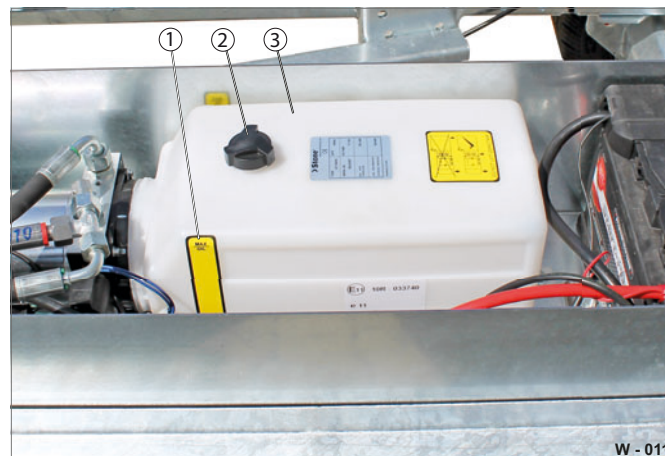


Fig. 24 Oil container

- 1 Fill level marks
- 2 Sealing cap, oil filler spigot
- 3 Oil container

The oil container is designed to hold a maximum of 6.0 litres.

! The oil level and condition of the hydraulic oil must be checked at regular intervals (depending on the level of use, but at least every 6 months)!
Only hydraulic oils of the HLP-B series (ISO VG-46) may be used.

- ▶ Open the sealing cap / oil filler spigot (Fig. 24 /2).
- ▶ Pour the respective oil into the oil container (Fig. 24 /3).
- ▶ Pay attention to the fill level marks (Fig. 24 /1).
- ▶ Have the hydraulic oil changed in a specialist workshop if required.

Supply battery

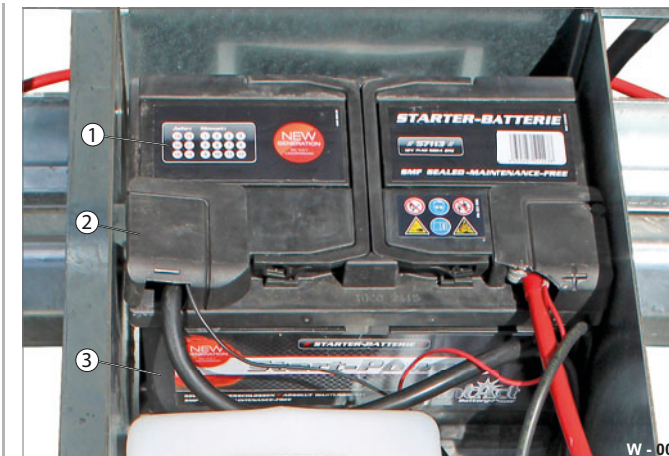


Fig. 25 Supply battery

- 1 Installation date
- 2 Terminal cover
- 3 Supply battery

- The supply battery supplies the electro-hydraulic equipment with a voltage of 12 V.
- Supply batteries in the form of gel or AGM batteries in a gas-tight design (no screw caps on the top) are maintenance-free according to DIN.
- Supply batteries in the form of fluid batteries with screw caps on top must be serviced at regular intervals, in order to maintain the charge capacity.

The installation date (Fig. 25 /1) reveals the age of the supply battery.

- ▶ Replace defective or old supply batteries (Fig. 25 /3).
- ▶ Prevent possible battery damage e.g. lack of charge, exhaustive discharge.
- ▶ Check the power of the supply battery at regular intervals (note the date of manufacture).

Changing the supply battery - removal

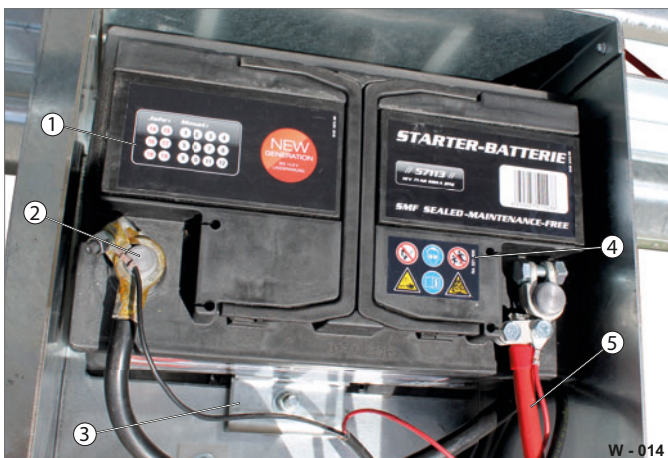


Fig. 26 Removing the supply battery

- 1 Installation date
- 2 Connection terminal
- 3 Clamp fastening
- 4 Warning sticker
- 5 Cable connections

- ▶ Note the warning sticker (Fig. 26 /4).
- ▶ Remove the terminal covers (Fig. 25 /2).
- ▶ Release the connection terminals (Fig. 26 /2).
- ▶ Remove the cable connections (Fig. 26 /5).
- ▶ Undo the screw on the clamp fastening (Fig. 26 /3).
- ▶ Carefully lift out the supply battery.
- ▶ Insert the new supply battery - of the same type and power.
- ▶ Connect the terminals - ensure correct polarity.
- ▶ Attach the terminal covers.
- ▶ Note down the installation date (Fig. 26 /1) of the new supply battery on the installation date label.
- ▶ Check that the supply battery is functioning correctly.

Changing the supply battery - Installation



Fig. 27 Installing the supply battery

- 1 Cover
- 2 Sheet metal case

- ▶ Fasten the supply battery with the clamp fastening.
 - ▶ Attach the cable connections - ensure correct polarity.
 - ▶ Screw the connection terminals tight.
 - ▶ Make sure that the terminal connections are not damp.
 - ▶ Attach the terminal covers.
 - ▶ Note the installation date of the new supply battery on the installation date label.
 - ▶ Check that the supply battery / electro-hydraulic equipment are working correctly.
 - ▶ Place the cover (Fig. 27 /1) on the sheet metal case (Fig. 27 /2).
- The cover seals off the electro-hydraulic equipment and protects it from moisture and dirt.

Charging the supply battery / Checking the charge status

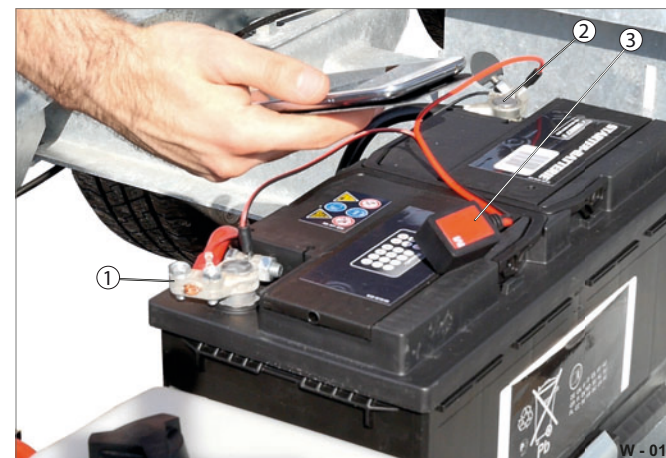


Fig. 28 Charging / checking the supply battery

- 1 - terminal
- 2 + terminal
- 3 Battery Guard


Charging options:

- Via an external battery charger (12V)
- Via the battery charging plug

For fluid batteries with screw caps:

- ▶ Remove the screw caps on the top.
- ▶ Check the battery acid level.
- ▶ If required, top up the supply battery with distilled water up to the mark.
- ▶ Charge the supply battery if the power is low.

Trickle charge

 Towing vehicles without a battery charging socket according to DIN ISO 11446 do not normally have a cut-off relay.

Damage to the vehicle battery and electronic system as well as exhaustive discharge of the vehicle battery could therefore occur.

The charge of the supply battery of the trailer is maintained via a charging line according to DIN ISO 11446 while driving. This is connected to the 13-pin socket on the towing vehicle.

- ▶ Please note this is primarily a trickle charge and not a full charge of the supply battery. If only short distances are travelled, the charging time may also not be enough for a trickle charge.

The cross-sections the cables in most towing vehicles (cars) are too small to completely charge the supply battery. The output of the alternator is usually insufficient to fully charge an additional supply battery in the trailer.

Checking the charge status



Fig. 29 Tester

- 1 Smartphone
- 2 Battery Guard

NOTICE

Discharged / low supply battery!

A discharged or low supply battery in the trailer can cause defective motor-starting relays in the towing vehicle.

- ▶ Check the power of the supply battery at regular intervals.
 - ▶ Charge the supply battery via an external battery charger.
 - ▶ Maintain the power of the supply battery via a trickle charge in the event of prolonged disuse.
-
- ▶ Check the charge status of the supply battery e.g. with a Battery Guard (Fig. 29 /2).
 - ▶ Connect the contacts to the positive / negative terminal of the supply battery.
 - ▶ Download the "IntAct Battery-Guard" app for your smartphone (Fig. 29 /1).
 - ▶ Check the charge status by means of Bluetooth.

Charging by means of an external battery charger (12V)



Fig. 30 Connection for battery charging plug

- 1 Covering cap for battery charging socket, closed



Make sure that the external battery charger is suitable for the supply battery.



Read the instructions for your external battery charger carefully and comply with the correct sequence of contact connections.

- ▶ Remove the covering cap (Fig. 30 /1).
- ▶ Connect the external battery charger to the supply battery in accordance with the relevant instructions.
- ▶ Charge the supply battery with the external battery charger.
- ▶ Remove the external battery charger.

Charging with the battery charging plug

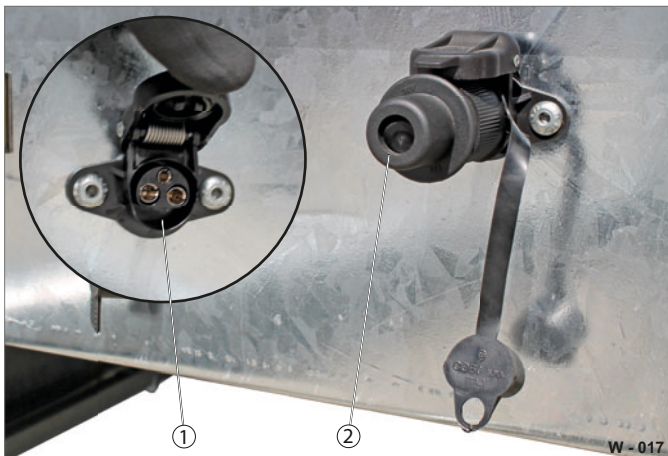


Fig. 31 Connection of battery charging plug

- 1 Battery charging socket
- 2 Battery charging plug

! If your external battery charger has a compatible battery charging plug, you can connect it to the battery charging socket and charge the supply battery.

- ▶ If your external battery charger does not have a suitable battery charging plug:
Connect the charging line to the supplied battery charging plug (Fig. 31 /2).

! The contacts on the battery charging plug may not be soiled / corroded. These can be treated with contact spray.

- ▶ Insert the battery charging plug in the battery charging socket (Fig. 31 /1).

Pre-assembly of the battery charging plug

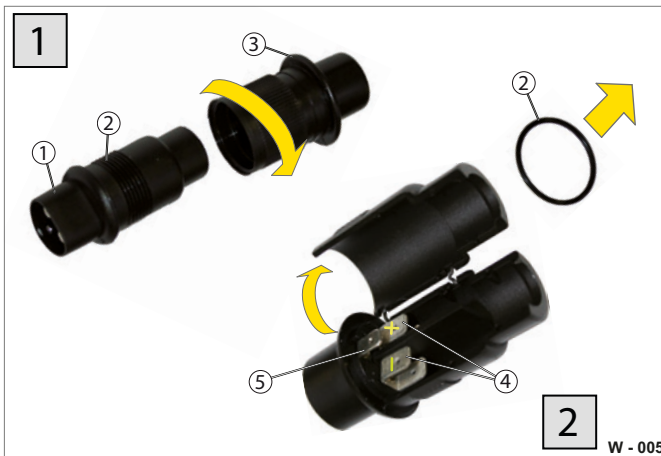


Fig. 32 Connecting the cable to the battery charging plug

- 1 Front section of plug (with contacts)
- 2 Rubber sealing ring
- 3 Back of plug
- 4 + line No. 15/30; - line No. 31
- 5 Pin terminal No. 82 (free)

! Cable cross-section of at least 2.5 mm² must be complied with!

- ▶ Remove the battery charging plug (Fig. 31 /2) from the battery charging socket (Fig. 31 /1).
- ▶ Unscrew the battery charging plug - remove the rubber sealing ring (Fig. 32 /2) in the process.
- ▶ Pull the rear section of the plug (Fig. 32 /3) on to the charging line.
- ▶ Open the front section of the plug (Fig. 32 /1).

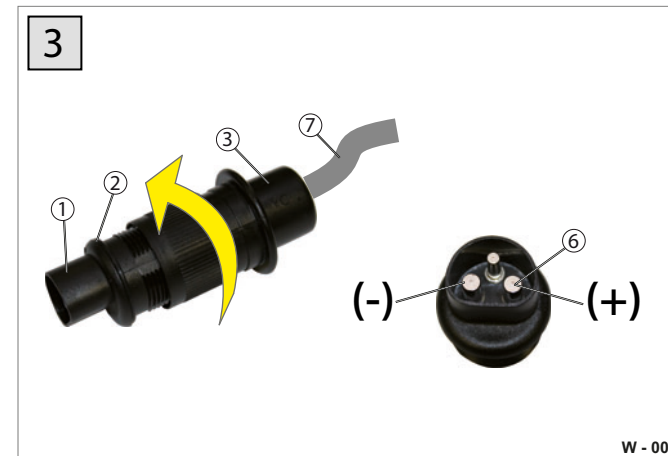


Fig. 33 Closing the battery charging plug

- 1 Front section of plug (with contacts)
- 2 Rubber sealing ring
- 3 Back of plug
- 6 Contacts
- 7 Charging line, connected

- ▶ Attach the + conductor, terminal no. 15/30 (generally red) (Fig. 32 /4) to the + terminal (Fig. 33 /6). Attach the - conductor, terminal No. 31 (generally black) (Fig. 32 /4) to the - terminal (Fig. 32 /5). Leave the third pin terminal No. 82 free.
- ▶ Close the front section of the plug (Fig. 33 /1) and slide the rubber sealing ring (Fig. 33 /2) on to the battery charging plug.
- ▶ Screw the plug elements together again.
The external battery charger can be connected via the battery charging socket by means of the battery charging plug.

Electric hydraulic pump

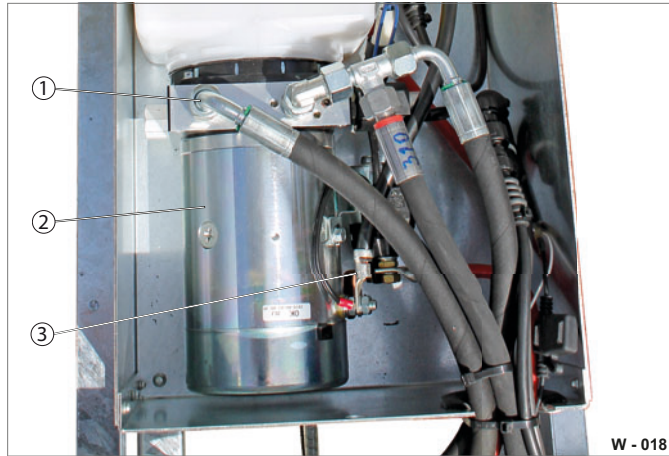


Fig. 34 Electric hydraulic pump

- 1 Hydraulic connections / fittings
- 2 Electric hydraulic pump
- 3 Electric connections



Maintenance / repair of the electric hydraulic pump (Fig. 34) may only be carried out by a qualified electrician!

Trailer materials



Fig. 35 Materials / surfaces

- 1 Aluminium, anodised
- 2 Soft rubber
- 3 Steel, galvanised
- 4 Plastic
- 5 Rubber (hoses)
- 6 Steel, hard-chrome plated
- 7 Aluminium, untreated
- 8 Steel, painted

The trailers are assembled from various materials.

Always take note of the specific features for care of the materials / surfaces.



When cleaning the chassis with high-pressure cleaners, sensitive components, e.g. electrical / hydraulic / pneumatic lines, electronic components, brake components, must be protected from direct contact with the stream!

The telescopic cylinder may not be sprayed directly.
The extensions and wipers of the telescopic cylinder must be protected from spray water.



Fig. 36 Steel drop sides

Cleaning the trailer / cargo bed



Fig. 37 Cleaning the chassis / loading bridge

- 1 Tie-down points
- 2 Drop side hinge
- 3 Locks / bearing points
- 4 Drop side folded down
- 5 Air gap



The loading bridge can be tilted slightly for easier cleaning of the cargo bed.

The drop sides and stanchions can be opened and removed.

The cargo bed should be cleaned after any transport of bulk goods.

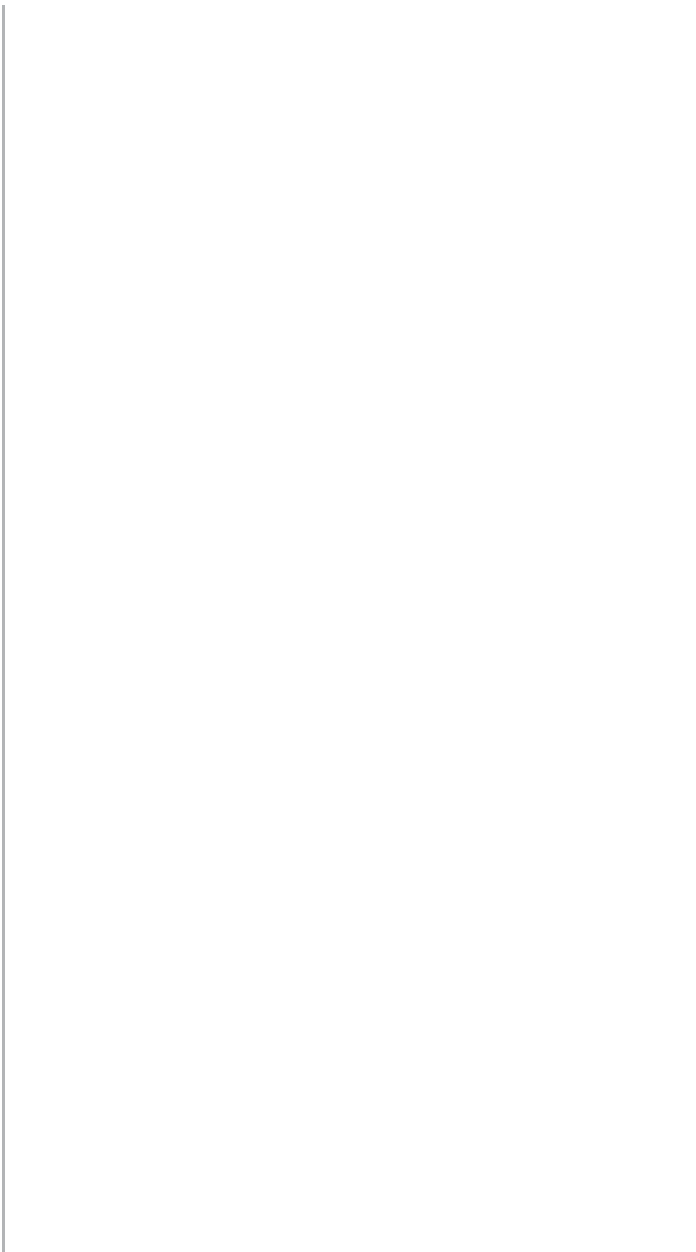
**WARNING****Wet / smooth components during cleaning!**

You could slip – risk of falling!



- ▶ Use , .
- ▶ Do not climb on the trailer components to clean the cargo bed.
- ▶ Use a stable ladder for the cleaning work.

- ▶ Open and remove the drop sides.
- ▶ Tip the loading bridge.
- ▶ Remove coarse debris such as grit, sand and twigs from the cargo bed / latches / drop side hinges with a broom.
- ▶ Rinse off the cargo bed with the pressure washer.
- ▶ Allow the chassis and the cargo bed to dry completely after cleaning work.





Competence in Trailers



8

Troubleshooting guide

Action in the case of faults

This section contains information on possible faults in the trailer. The information should facilitate the search for the fault source and enable it to be rectified to the extent that the next service station of Humbaur GmbH can be reached.

Faults which occur as a consequence of failing to comply with the operating instruction manual or as a result of a lack of maintenance are not considered.

Unfortunately we cannot cover all the problems which may occur here.

In the case of major faults, please notify the **Humbaur Service** (see contact addresses stated below).



WARNING

Improper troubleshooting

Improper troubleshooting can cause components to fail - accident risk!

- ▶ Have faults rectified only by a qualified specialist workshop.



WARNING

Unsecured trailer / unexpected movement

Going under the chassis when troubleshooting - risk of crushing if the trailer starts to move unexpectedly.

- ▶ Make sure that the trailer is secured by wheel chocks / wooden blocks, so that it cannot roll away.
- ▶ Do not actuate the hydraulic system when you or anyone else go under the chassis.

Humbaur Service

Any warranty claims become invalid if the trailer or its modules are altered or disassembled without our previous written agreement.

Technical customer service

tel.: +49 821 24929 0

fax.: +49 821 24929 540

email: service@humbaur.com

Humbaur Service Partners

can be found at www.humbaur.com
under Dealers/Service > Service/Repairs

Address of the manufacturer

Humbaur GmbH

Mercedesring 1

86368 Gersthofen (Germany)

tel.: +49 821 24929 0

fax.: +49 821 24929 100

www.humbaur.com

info@humbaur.com

Spare parts



Only use original Humbaur spare parts!

Spare parts can be obtained stating the **VIN** and the part designation as follows:

- Online, email, telephone

Contact parts logistics

tel.: +49 821 24929 0

fax.: +49 821 24929 200

email: parts@humbaur.com

Fault	Possible causes	Remedy
Cargo bed cannot be lowered. Telescopic cylinder does not retract.	A line or screw connection in the hydraulic system is defective.	▶ Have the line / screw connection replaced in a specialist workshop.
	A screw connection in the hydraulic system is loose.	▶ Tighten up the screw connection.
	The oil is too cold (viscous).	▶ Ensure that the oil has the requisite operating temperature and viscosity.
	The oil is too old (viscous).	▶ Have the oil changed in a specialist workshop.
	Telescopic cylinder is frozen.	▶ Defrost the telescopic cylinder.
	Line break safety device is activated, but no leakage apparent.	▶ Actuate the manual pump / emergency hand pump (build up the pressure). ▶ Then turn the hand wheel of the manual pump / emergency hand pump very slowly to open it (release the pressure).
	Supply battery has failed.	▶ Have the supply battery replaced in a specialist workshop.
	Supply battery is too weak (empty).	▶ Charge the supply battery.

Fault	Possible causes	Remedy
Cargo bed cannot be tipped. Telescopic cylinder cannot be extended.	Supplied quantity of oil is too low.	<ul style="list-style-type: none"> ▶ Check the oil level in the oil container. ▶ Top up oil if required.
	Excessive oil pressure applied - with towing connection. The oil is too viscous and too cold.	<ul style="list-style-type: none"> ▶ Comply with the max. oil pressure. ▶ Ensure that the oil has the requisite operating temperature and viscosity.
	Oil pressure in the system is too low.	<ul style="list-style-type: none"> ▶ Check that sufficient oil pressure is generated by the tractor unit in the case of a towing connection. ▶ Check that the electric hydraulic pump is functioning and generating pressure. ▶ Check that there are no oil leaks, e.g. cracked hoses, leaky connection points.
	Supply battery has failed.	<ul style="list-style-type: none"> ▶ Have the supply battery replaced in a specialist workshop.
	Supply battery is too weak (empty).	<ul style="list-style-type: none"> ▶ Charge the supply battery. ▶ Tip the cargo bed with the emergency hand pump.
	Valve wheel on the manual pump / emergency hand pump is open.	<ul style="list-style-type: none"> ▶ Close the oil valve wheel on the manual pump / emergency hand pump and actuate the manual pump / emergency hand pump once again.
	Telescopic cylinder is frozen.	<ul style="list-style-type: none"> ▶ Defrost the telescopic cylinder.

We wish you a
pleasant & safe
journey

**“Quality made
in Germany...”**



Competence in Trailers



Competence in Trailers



Safety note!

The trailer may only be used with express compliance with all road traffic, professional association and load securing regulations.

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Subject to technical modifications.

All specifications are approximate values and relate to a series vehicle without accessories.

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