

Electro-hydraulic unit

Flatbed HTD / HTS - EN

General

As an option, flatbed trailers can be equipped with an electro-hydraulic unit.

The hydraulic drive-up ramps can then also be operated via the electro-hydraulic unit.

An electro-hydraulic unit comprises the following components:

- electric pump
- hydraulic oil tank
- switchover from electric pump to towing vehicle
- main switch

The electro-hydraulic unit can be fabricated in two versions:

- with battery power supply
- without battery power supply

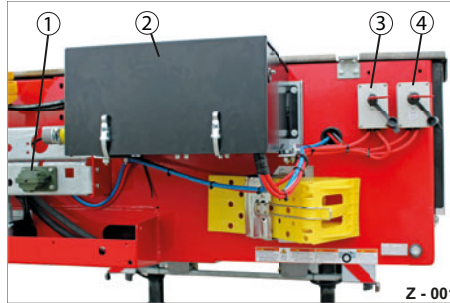


Abb. 1 Semi-trailer flatbed

- 1 NATO socket, 24 V power supply
- 2 Electro-hydraulic unit
- 3 Main switch for towing vehicle
- 4 Main switch for battery

On the semi-trailer flatbed, the electro-hydraulic unit is mounted on the front wall.

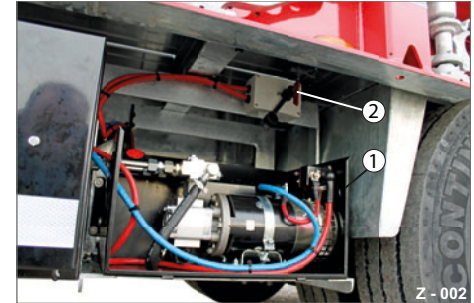


Abb. 2 Centre pivot plate flatbed

- 1 Electro-hydraulic unit
- 2 Main switch for power supply from the towing vehicle

On the centre pivot plate flatbed, the electro-hydraulic unit is mounted on the side, under the chassis, on the left in the direction of travel.

Maintenance / Servicing / Cleaning

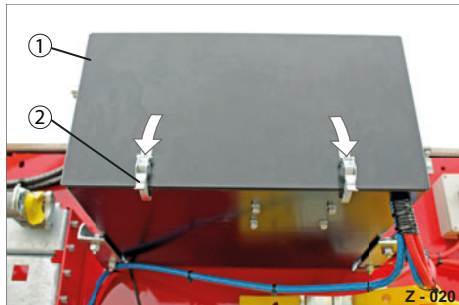


Abb. 3 Unlocking the cover

- 1 Cover
- 2 Locks, released

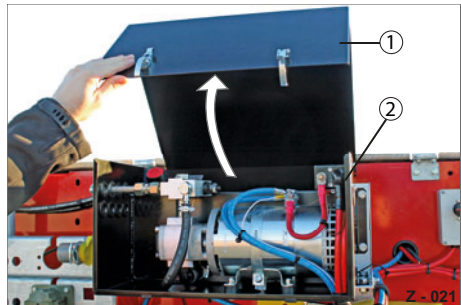


Abb. 4 Removing the cover

- 1 Cover
- 2 Housing

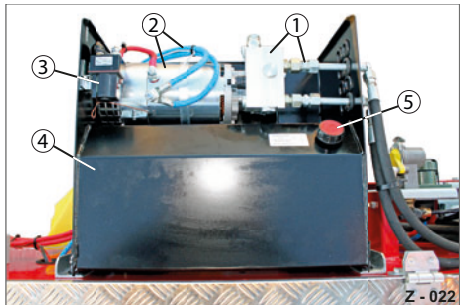


Abb. 5 Electro-hydraulic unit (seen from above)

- 1 Connections / lines
- 2 Electric pump / electric cables
- 3 Control system
- 4 Oil tank
- 5 Oil filler neck / lid with dipstick

Opening the electro-hydraulic unit



Maintenance / servicing work on the electro-hydraulic unit may only be performed by qualified specialists in a specialist workshop!

- ▶ Pull the locks (Abb. 3/2) open.

- ▶ Swing the cover (Abb. 4/1) up.
- ▶ Lift the cover off the housing (Abb. 4/2).
- ▶ Put the cover down carefully.

Visual inspection

- ▶ Carry out visual inspection of the individual components for damage / oil loss / leakage / cracks.
- ▶ If necessary, clean the individual components to remove dirt / foreign bodies / oil.
- ▶ Have defective components and any components showing signs of ageing replaced in a specialist workshop.

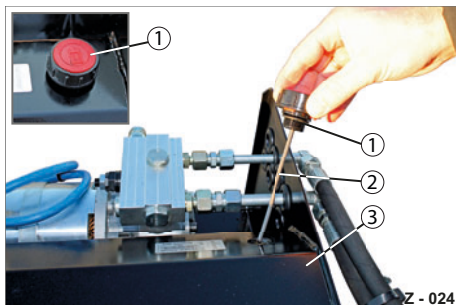


Abb. 6 Oil level

- 1 Cap, oil filler neck
- 2 Dipstick
- 3 Oil tank

- ▶ Unscrew the cap (Abb. 6/1).
- ▶ Read off the oil level on the dipstick (Abb. 6/2).
- ▶ If necessary, top up with hydraulic oil. Make sure you top up with the oil of the same type.
- ▶ Have spent / contaminated hydraulic oil replaced.
- ▶ Screw the cap on tightly.
- ▶ Check that the electro-hydraulic unit is functioning correctly.

Checking / changing the hydraulic oil

The oil tank is designed to hold a maximum of 16.0 litres.



The level and condition of the hydraulic oil must be checked regularly (depending on the intensity of use, but at least every 6 months)!

Only hydraulic oils in the series HLP-D (ISO VG-46) may be used.

Safety information / Warnings

The electro-hydraulic unit for power operation of the drive-up ramps falls under the scope of Machinery Directive 2006/42/EC.



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



Persons operating the flatbed trailer must have read and understood the operating manual!

In particular, it is essential to follow the instructions for correct operation of the drive-up ramps.

All warning information is contained in the operating manual for flatbed trailers!

The following section contains additional information on dangers associated with the handling of batteries and the power supply.



Maintenance / servicing work on the electro-hydraulic unit may only be performed by qualified specialists in a specialist workshop!



Read and follow the battery manufacturer's safety instructions.



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

DANGER of polluting the environment.

Particular care must be taken when removing / replacing batteries.



Batteries and storage batteries are waste requiring special monitoring. They must never be disposed of with household waste or in the environment.

NOTICE

Use of high-pressure cleaners!

The electro-hydraulic unit, the batteries and hydraulic hoses may be damaged during cleaning with high-pressure cleaners.

- ▶ Exercise particular caution when cleaning the trailer with high-pressure devices.
- ▶ Never aim the jet of water directly at the electro-hydraulic unit / hydraulic hoses / electric cables / batteries.

**WARNING****Danger when handling batteries**

The batteries can explode as a result of sparking or short circuits.

- ▶ Avoid short circuits or sparking.
- ▶ Do not place any tools / objects on the batteries.
- ▶ Cover the battery poles before starting work on the batteries.



- ▶ Do not smoke or allow naked flames near the batteries.

**WARNING****Escaping battery acid**

Battery acid is corrosive and can cause chemical burns if it comes into contact with the skin.



- ▶ Consult a doctor immediately in the event of acid burns.

**WARNING****Hot batteries**

Bridged batteries can become hot - risk of burns!



- ▶ Allow bridged batteries to cool down before commencing work on them.

**WARNING****Escaping hydraulic oil / lines under pressure**

Hydraulic oil escaping under pressure can cut through skin.

Hydraulic oil can cause skin irritation.

- ▶ Before performing maintenance work on the hydraulic system, check that the lines are depressurised and / or disconnected from the towing vehicle.




- ▶ Use  .

Battery

The batteries provide a 24 V power supply for the electro-hydraulic unit.

The batteries must be serviced regularly to maintain their charging capacity.

The charge is maintained via a NATO connector.

 The NATO connector must be inserted before driving off.

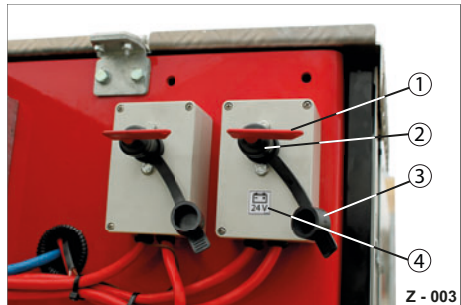


Abb. 7 Battery power supply right-hand main switch

- 1 Plug-in switch
- 2 Socket ON / OFF
- 3 Cap
- 4 24 V sticker

The main switch for the power supply is located on the front wall of the semi-trailer flatbed (on the right).

The main switch for the batteries is labelled with a sticker (Abb. 7/4).

- ▶ Insert the plug-in switch (Abb. 7/1) into the socket (Abb. 7/2).

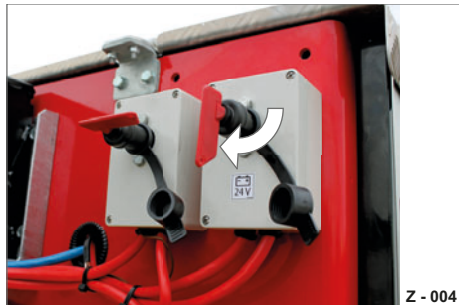


Abb. 8 Switching on the batteries (ON)

Switching on the battery

- ▶ Turn the plug-in switch (Abb. 7/1) to ON position.
The batteries are activated.
The electric pump switches on.

Charging the battery

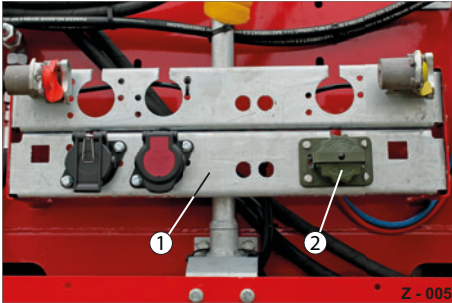


Abb. 9 24 V power supply

- 1 Panel for plug-in connections
- 2 NATO socket 24 V, closed off

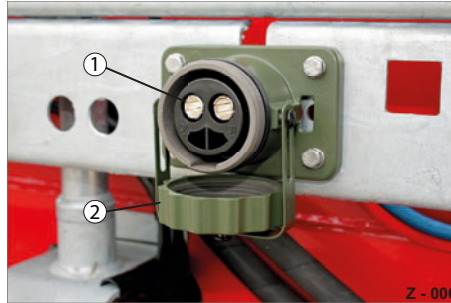


Abb. 10 NATO socket

- 1 Electrical connection 2P/ 24 V (+ / -)
- 2 Sealing cap, threaded

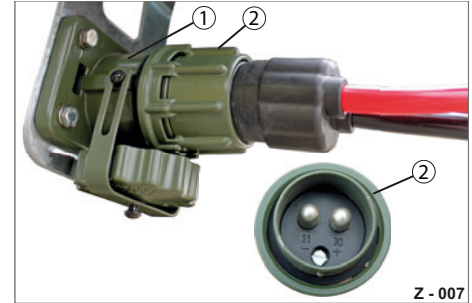


Abb. 11 Power supply connected

- 1 NATO socket (VG 96917)
- 2 NATO connector 2P/24 V



Prevent possible battery damage, e.g. insufficient charge, deep discharge.

NOTICE

Deep discharge of the battery

The function of the battery can be impaired or may fail altogether as a result of incorrect charging / handling.

- ▶ Before driving off, check that the battery is connected to the towing vehicle via the NATO connector.

- ▶ Unscrew the sealing cap (Abb. 10/2).

- ▶ Plug the NATO connector (Abb. 11/2) into the NATO socket (Abb. 11/1) and screw the connection tight.

- ▶ Connect the other end to the towing vehicle.

When the engine of the towing vehicle is started, the battery charge will be maintained.

Servicing / replacing batteries

The batteries are subject to ageing and must be serviced / replaced regularly depending on the intensity of use.



The safety precautions and environmental protection measures must be complied with when servicing / replacing / disposing of batteries!



WARNING



Live batteries!

When the NATO power connection is plugged in, the battery is live - danger of short circuiting!



- ▶ Before performing maintenance work, check that the power supply is disconnected.
- ▶ Check that the plug-in switch for the batteries is set to OFF.

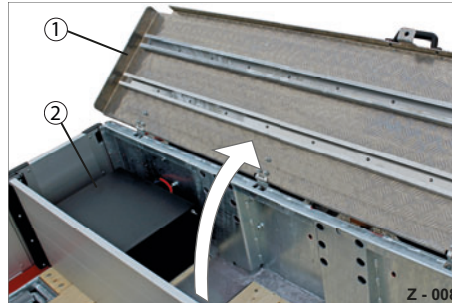


Abb. 12 Battery box

- 1 Cover, storage compartment / plateau
- 2 Battery box, closed

The battery box is integrated in the storage compartment on the plateau.

- ▶ Open the cover (Abb. 12/1) of the storage compartment.
- ▶ Make sure that the cover cannot fall down.

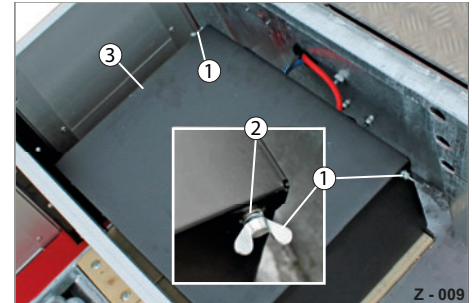


Abb. 13 Opening the battery box

- 1 Wing nut
- 2 Spring washers / washer
- 3 Cover of battery box

Opening the battery box

- ▶ Unscrew the wing nuts (Abb. 13/1) on both sides.
- ▶ Keep the wing nuts and washers (Abb. 13/2) in a safe place.
- ▶ Fold the cover (Abb. 13/3) of the battery box up.

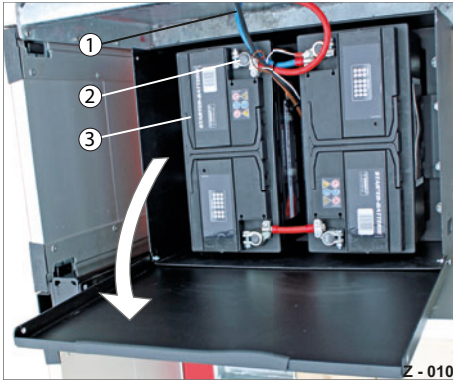


Abb. 14 Battery box, open

- 1 Power cable
- 2 Terminal clamps
- 3 Battery (2 x 12 V, 88 Ah)

Opening the battery box

- ▶ Unscrew the wing nuts (Abb. 13/1) on both sides.
- ▶ Keep the wing nuts and washers (Abb. 13/2) in a safe place.
- ▶ Fold the cover (Abb. 13/3) of the battery box up.

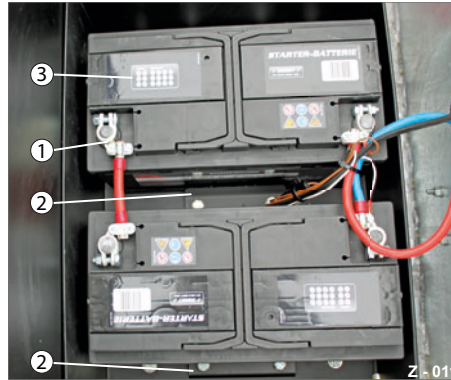


Abb. 15 Removing the batteries

- 1 Terminal clamps
- 2 Holder
- 3 Label with installation date

Replacing batteries

- ▶ Release the terminal clamps (Abb. 15/1).
- ▶ Remove the cable connections.
- ▶ Release the threaded connections of the holders (Abb. 15/2).
- ▶ Carefully pull the batteries out of the battery box.
- ▶ If necessary, remove any soiling from the battery box.

- ▶ Insert the new batteries - of the same type and rating.
- ▶ Attach the batteries with the holders.
- ▶ Attach the cable connections - observing the correct polarity.
- ▶ Screw the terminal clamps on tightly. Make sure that there is no sign of moisture at the clamping points.
- ▶ Write the installation date of the new batteries on the label (Abb. 15/3).
- ▶ Check that the batteries / electro-hydraulic pump are functioning correctly.

Connecting the power supply

The electric pump must be supplied with 24 V from the towing vehicle.



The NATO connector must be plugged in before operating the hydraulic system.

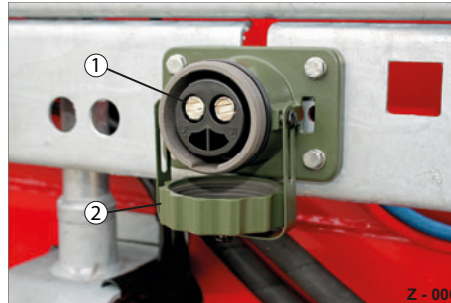


Abb. 16 NATO socket

- 1 Electrical connection 2P/ 24 V (+ / -)
- 2 Sealing cap, threaded

► Unscrew the sealing cap (Abb. 16/2).

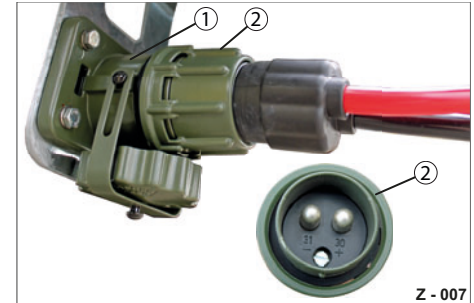


Abb. 17 Power supply connected

- 1 NATO socket (VG 96917)
- 2 NATO connector 2P/24 V

► Plug the NATO connector (Abb. 17/2) into the NATO socket (Abb. 17/1) and screw the connection tight.

► Connect the other end to the towing vehicle.

The electric pump is supplied with 24 V.

6 External power supply

Power supply via towing vehicle (semi-trailer flatbed)

To operate the hydraulic system via the towing vehicle, the power supply must be switched on.

The main switch for the power supply is located on the front wall, next to the electro-hydraulic unit of the semi-trailer flatbed (on the left).



The plug-in switch can be removed from the socket to prevent unauthorised access. The socket must be sealed off with the cap.

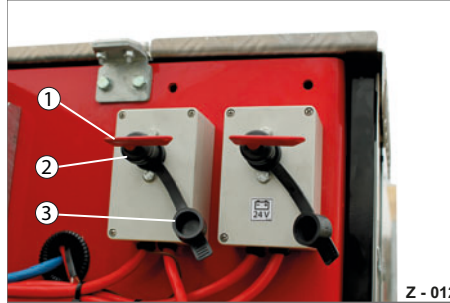


Abb. 18 Power supply from towing vehicle left-hand main switch

- 1 Plug-in switch
- 2 Socket ON / OFF
- 3 Cap

- ▶ Insert the plug-in switch (Abb. 18/1) into the socket (Abb. 18/2).

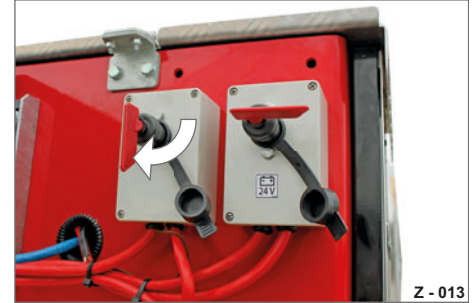


Abb. 19 Switching on the power supply (ON)

Switching on the power supply

- ▶ Turn the plug-in switch (Abb. 18/1) to ON position.
The power supply via the towing vehicle is activated.

Power supply via towing vehicle (centre pivot plate flatbed)

To operate the hydraulic system via the towing vehicle, the power supply must be switched on.

The main switch for the power supply is located under the chassis, on the electro-hydraulic unit of the centre pivot plate flatbed.



The plug-in switch can be removed from the socket to prevent unauthorised access. The socket must be sealed off with the cap.

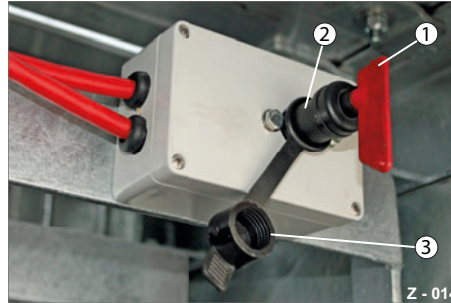


Abb. 20 Power supply from the towing vehicle

- 1 Plug-in switch
- 2 Socket ON / OFF
- 3 Cap

- ▶ Insert the plug-in switch (Abb. 20/1) into the socket (Abb. 20/2).

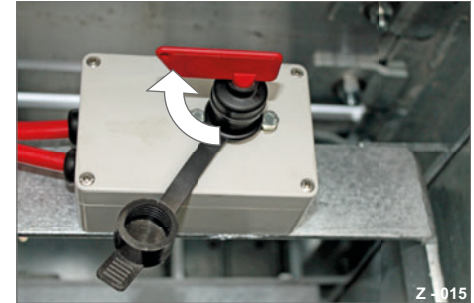


Abb. 21 Switching on the power supply (ON)

Switching on the power supply

- ▶ Turn the plug-in switch (Abb. 20/1) to ON position.
The power supply via the towing vehicle is activated.

Hydraulic supply (semi-trailer flatbed)

The trailer can be supplied with hydraulic oil directly from the towing vehicle or via the electro-hydraulic unit.

The switchover is located on the front wall of the semi-trailer flatbed.

The hydraulic feed must be switched over accordingly.



If the hydraulic feed is not set correctly, the hydraulic system will not function - no pressure build-up.



For information on correct operation of the drive-up ramps / supports, read the operating manual for flatbed trailers.

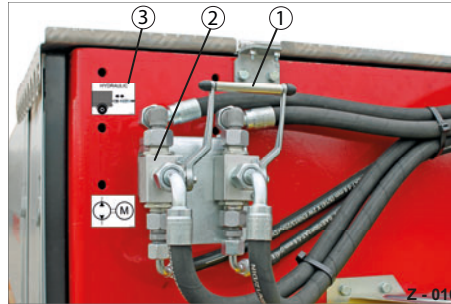


Abb. 22 Hydraulic feed "Towing vehicle"

- 1 Switch lever, top position
- 2 Valve
- 3 Label

To set the desired hydraulic feed (from the towing vehicle or the electric pump), the position of the switch lever (Abb. 22/1) must be changed.

The valves (Abb. 22/2) reroute the hydraulic oil accordingly.

The hydraulic feed can be identified by the labels (Abb. 22/3).

- ▶ Before operating the hydraulic system, check the setting of the hydraulic feed.

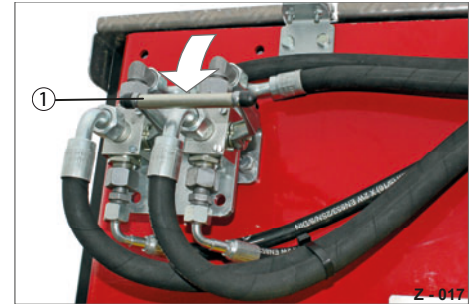


Abb. 23 Hydraulic feed "Electric pump"

- 1 Switch lever, horizontal position

- ▶ Flip the switch lever (Abb. 23/1) into horizontal position.

The hydraulic feed is switched over to the electro-hydraulic unit.

Hydraulic supply (centre pivot plate flatbed)

The trailer can be supplied with hydraulic oil directly from the towing vehicle or via the electro-hydraulic unit.

The switchover is located directly on the operating console for the hydraulic system of the centre pivot plate flatbed.

The hydraulic feed must be switched over accordingly.



If the hydraulic feed is not set correctly, the hydraulic system will not function - no pressure build-up.



For information on correct operation of the drive-up ramps / supports, read the operating manual for flatbed trailers.

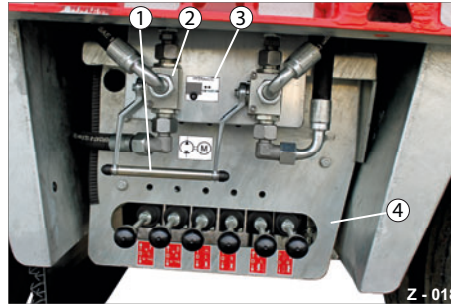


Abb. 24 Hydraulic feed "Electric pump"

- 1 Switch lever, bottom position
- 2 Valve
- 3 Label
- 4 Operating console for the hydraulic system

To set the desired hydraulic feed (from the towing vehicle or the electric pump), the position of the switch lever (Abb. 24/1) must be changed.

The valves (Abb. 24/2) reroute the hydraulic oil accordingly.

The hydraulic feed can be identified by the labels (Abb. 24/3).

- ▶ Before operating the hydraulic system, check the setting of the hydraulic feed.

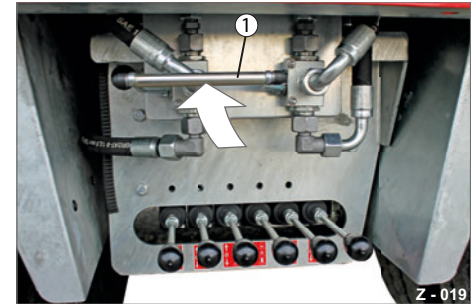


Abb. 25 Hydraulic feed "Towing vehicle"

- 1 Switch lever, horizontal position

- ▶ Flip the switch lever (Abb. 25/1) into horizontal position.

The hydraulic feed is switched over to the towing vehicle.



HUMBAUR GmbH hereby confirms compliance with all relevant EC guidelines for the certification and safe operation of the electro-hydraulic unit.

You can separately request an EC Declaration of Conformity from us.