PALFINGER TAIL LIFTS

ASSEMBLY INSTRUCTIONS

STANDARD TAIL LIFTS

LIFETIME EXCELLENCE

Assembly instructions

for

PALFINGER Tail Lifts

Standard tail lifts

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1. About these assembly instructions

These assembly instructions contain important information to ensure that the **PALFINGER Tail Lifts** tail lift is safely and properly assembled.

Some texts in this manual have a special purpose and are marked as follows:

- Listing

► Instruction for action

► Read these assembly instructions all the way through, particularly the chapter “Important safety information" on page 9, before attaching the tail lift.

► Observe all the generally applicable statutory and other binding European and national regulations on accident prevention, handling hazardous substances and on environmental protection.

1.1. Abbreviations used

Abbreviation/symbol	Meaning
ETMA	European Taillift Manufacturers Association

1.2. Scope of delivery

The scope of delivery of your **PALFINGER Tail Lifts** tail lift is based on the model you ordered and any agreed special accessories.

1.3. Enclosed documents

In addition to these assembly instructions, you will receive additional documents with your **PALFINGER Tail Lifts** tail lift.

► Observed all documents enclosed with your ordered **PALFINGER Tail Lifts** tail lift.

► In addition, you should also observe the operating instructions for the **PALFINGER Tail Lifts** tail lift and all documents from the vehicle manufacturer.

The following documents are enclosed with the **PALFINGER Tail Lifts** tail lift:

- Assembly drawing (optional)
- Attachment report/attachment diagram (if requested)
- Control booklet
- Operating instructions
- Short operating manual
- Assembly instructions (short form)
- Underrun protection unit certificate
- Small and large test plate
- ETMA adhesive decal
- Type plate
- Assembly instructions for warning flags
- Electrical circuit diagram

2. Important safety information

The **PALFINGER Tail Lifts** tail lift has been built according to the state-of-the-art and to recognised safety engineering rules. Nevertheless there is a danger of personal injury and material damage if you do not comply with the following general safety instructions and the warnings in these assembly instructions.

- ► Read this assembly manual thoroughly all the way through, before mounting the **PALFINGER Tail Lifts** tail lift.
- ► Keep the assembly instructions at hand in a good condition so that they are always legible. Make sure that they are available to all responsible fitters at all times.
- ► Always ensure that these assembly instructions and the supplied documents are always passed on along with the **PALFINGER Tail Lifts** tail lift to third parties.

2.1. Personnel qualifications

The assembly and commissioning of the **PALFINGER Tail Lifts** tail lift require systematic knowledge of mechanical, electrical, hydraulic systems as well as familiarity with the associated specialist terms. Consequently to ensure operational safety these activities may only be executed by trained and authorised specialists, who have been instructed in safety engineering aspects, or by an instructed person working under the supervision of a specialist.

A specialist is a person who, due to their specialised training, knowledge and experience, as well as knowledge of the applicable regulations, can evaluate the tasks assigned to them, recognise possible dangers, and implement suitable safety measures. A specialist must comply with the applicable technical rules.

2.2. Warning notices in these assembly instructions

In these assembly instructions safety instructions precede a procedure which incurs risks of personal injury or material damage.

Warnings are structured as follows:

SIGNAL WORD!

Description of type and source of the danger!

Description of consequences of non-observance.

► Description of measures for avoiding danger.

- The warning triangle indicates a risk of fatal or severe injuries.
- The signal word indicates the severity of the danger. The signal words have the following meanings:

Signal word	Meaning
DANGER!	Indicates an imminent, major hazard that is certain to result in serious injury or even death if the hazard is not avoided.
WARNING!	Indicates a potential hazard that may result in serious injury or even death if the hazard is not avoided.
CAUTION!	Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor injury or property damage.
Note:	If you do not observe this information, the assembly process may be adversely affected.

- The paragraph “Type and source of hazard” describes the nature and source of the danger.
- The paragraph “Consequences” describes possible consequences of ignoring the warning.
- The “Avoidance of hazard” paragraphs indicate how to avoid the danger. It is essential that the measures to avert danger are complied with.

2.3. You must take these points into account during assembly

2.3.1. General information

- ► Observe these assembly instructions and in particular all the safety instructions.
- ► Structural modifications on the tail lift may only be performed by **PALFINGER Tail Lifts** contract workshops. You can find your nearest authorised workshop in the location search at www.palfinger.com under “ales and service search”.
- ► Only use **PALFINGER Tail Lifts** original parts during assembly work.
- ► Observe all applicable accident prevention regulations.
- ► Observe the vehicle manufacturer's attachment guidelines.
- ► Observe the respectively applicable general attachment report (attachment diagram) from **PALFINGER Tail Lifts**.
- ► Make sure that any welding work is only performed by certified welders. It is essential to comply with the vehicle maker's specifications as well as the applicable standards and regulations for welding work.

2.3.2. Before starting assembly

- ► Check the compatibility of the vehicle and the tail lift before assembly.
- ► Refer to the chapter “Test by the assembler before assembly” in the control booklet.
- ► Observe the attachment report (attachment diagram).
- ► Before starting assembly, read the safety instructions in the operating instructions, especially the chapter "Care and maintenance".
- ► Observe the additional assembly instructions that were included with the respective components (e. g. camera system).
- ► Place the vehicle on a level and firm surface for assembly and align the vehicle so it is also level.
- ► If the vehicle has air suspension, deactivate this.
- ► Always disconnect the battery and the ABS system before assembly.

2.3.3. During assembly

► When connecting the hydraulic parts, ensure that the connections are clean and that no contamination can get into the hydraulic circuit.

► Make sure that the **PALFINGER Tail Lifts** tail lift and its moving parts, the coupling, the brake system, the oil lines, the pneumatic lines and the cabling of the vehicle are not damaged.

► Do not apply any overpressure to the functions lift/lower, open/close, retract or extend before the assembly is entirely completed.

2.3.4. During initial commissioning

► Only operate the tail lift when the vehicle's superstructure is fitted. If you operate the tail lift without its body, there is a risk that the pistons of the lift cylinders will fall out if the lifting height is too high, resulting in personal injury and material damage.

► During initial commissioning of the **PALFINGER Tail Lifts** tail lift, check whether all safety and warning features are available and functional.

- Warning strips
- Warning lights
- Roll bar

► Carry out an acceptance test according to the control booklet (see chapter 11.2, page 76).

3. Required tools and auxiliary equipment

To assemble your **PALFINGER Tail Lifts** tail lift you will need the following tools and auxiliary equipment:

Tools
Wrench size in mm: 6, 8, 10, 13, 15, 17, 19, 21, 36, 41, 46, 50, 60, 65, 70
Set of Allen keys up to 24 mm
Torque wrench 25 up to 400 Nm
Socket wrench 4, 6
4x screw clamps
Peening tool
Hand-held electric drill
Spiral drill up to 14 mm diameter
Crimping tool for cable lugs (16 mm^2, 25 mm^2, 35mm^2)
Insulation stripper
Side cutter
TORX® screwdrivers
Mallet
Impact wrenches size in mm: 46, 50, 60, 65
Locking pliers for external rings A2

Auxiliary equipment
Installation aid (installation device)
Stop bracket
Marker
Tape measure
Lifting equipment (e.g. forklift, pallet truck)
Battery terminal grease
Lubricant grease for bearing pins
Grease gun

4. Model line

Below a list of standard version models of **PALFINGER Tail Lifts** tail lifts.
The following models are available:

C 1000 S – C 3000 S
C 1000 LD – C 2500 L
C 1500 SZ – C 2500 SZ
C 2000 SK – C 2500 SK
C 750 SPLD SPRD – C 1000 SPL SPR
C 750 LD – C 1000 L
C 1000 ML – C 1500 ML
C 1000 ML PRO – C 1500 ML PRO
C 750 S
C 500 LD – C 750 LD
C 750 SPL SPR
C 1500 LX – C 2000 LX
PTC 750 L
PTC 750 S
PTC 1000 LLW

The following general drawings show the structure of the **PALFINGER Tail Lifts** tail lift and of the individual sub-assemblies.

4.1. Standard tail lift, overview

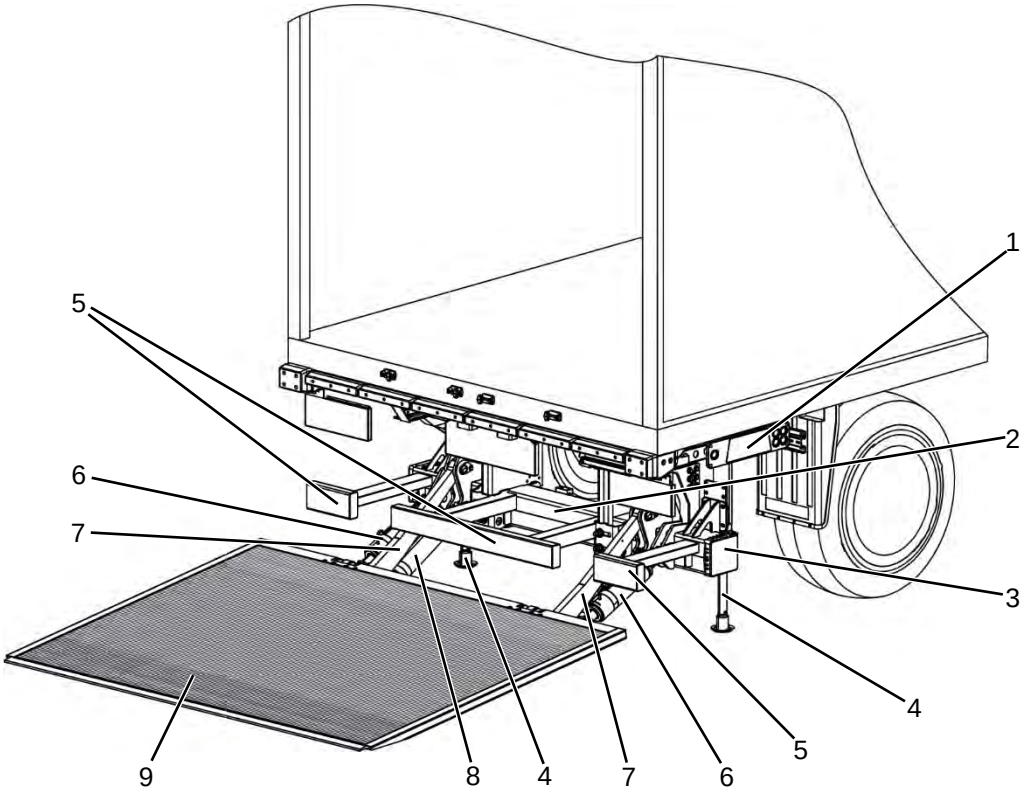


Figure 1: Standard tail lift, overview

1 Operating unit (Slimpanel)

2 Stand tube

3 Hydraulic unit and controller (in stand tube)

4 Hydraulic prop

5 Underrun protection

6 Tilt cylinder

7 Torsion frame, control rod

8 Lift cylinder

9 Platform

4.2. Tail lift with welded consoles and slide-in unit

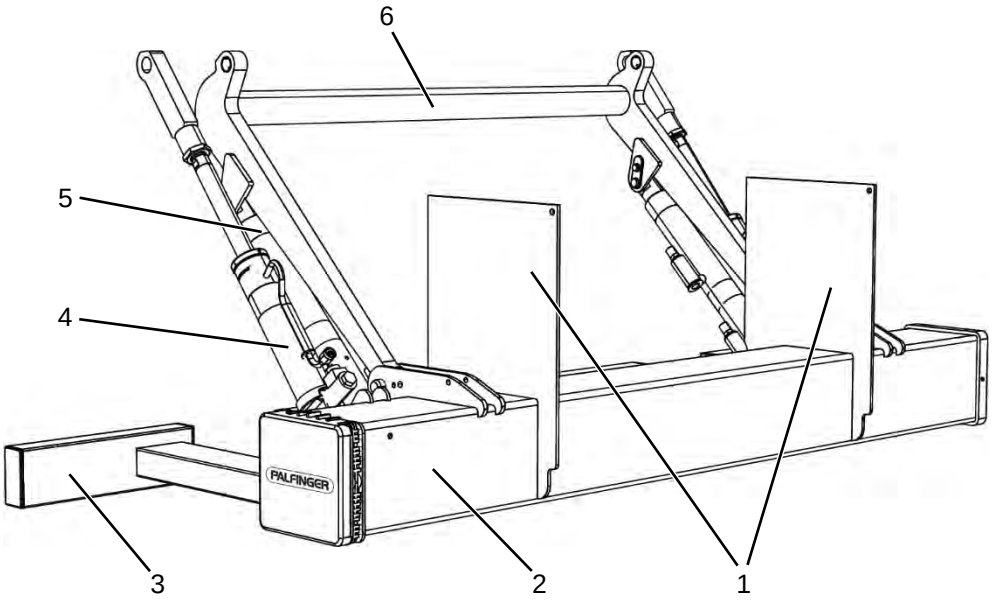


Figure 2: Tail lift with welded consoles and slide-in unit

1 Welded console plates
2 Stand tube
3 Underrun protection
4 Tilt cylinder
5 Lift cylinder
6 Torsion frame

4.3. Tail lift with bolted consoles and slide-in unit

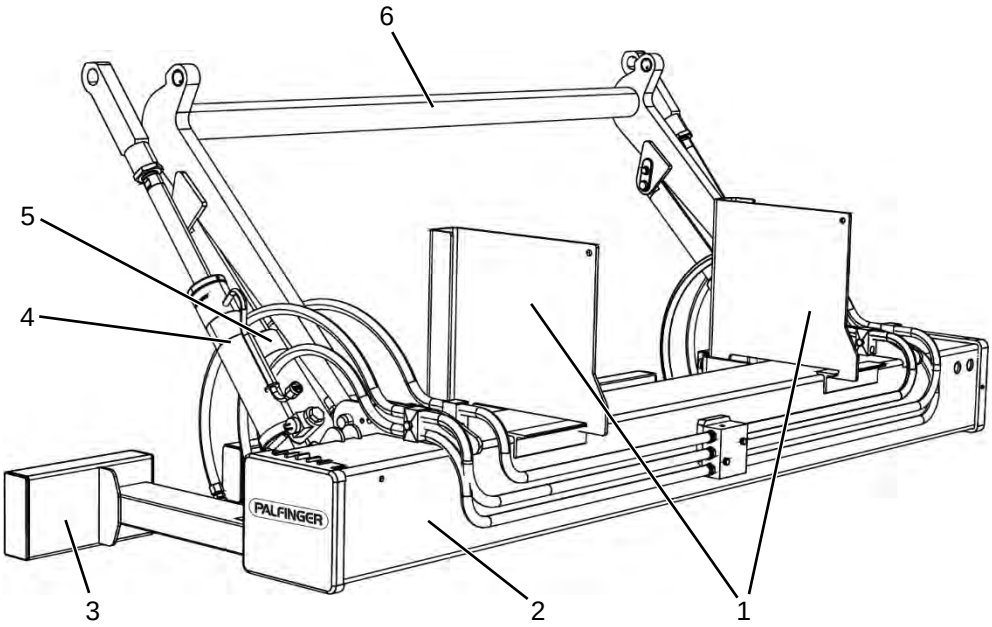


Figure 3: Tail lift with bolted consoles and slide-in unit

1 Bolted console plates
2 Hydraulic unit (in stand tube)
3 Underrun protection
4 Tilt cylinder
5 Lift cylinder
6 Torsion frame

4.4. Tail lift with platform and turning unit

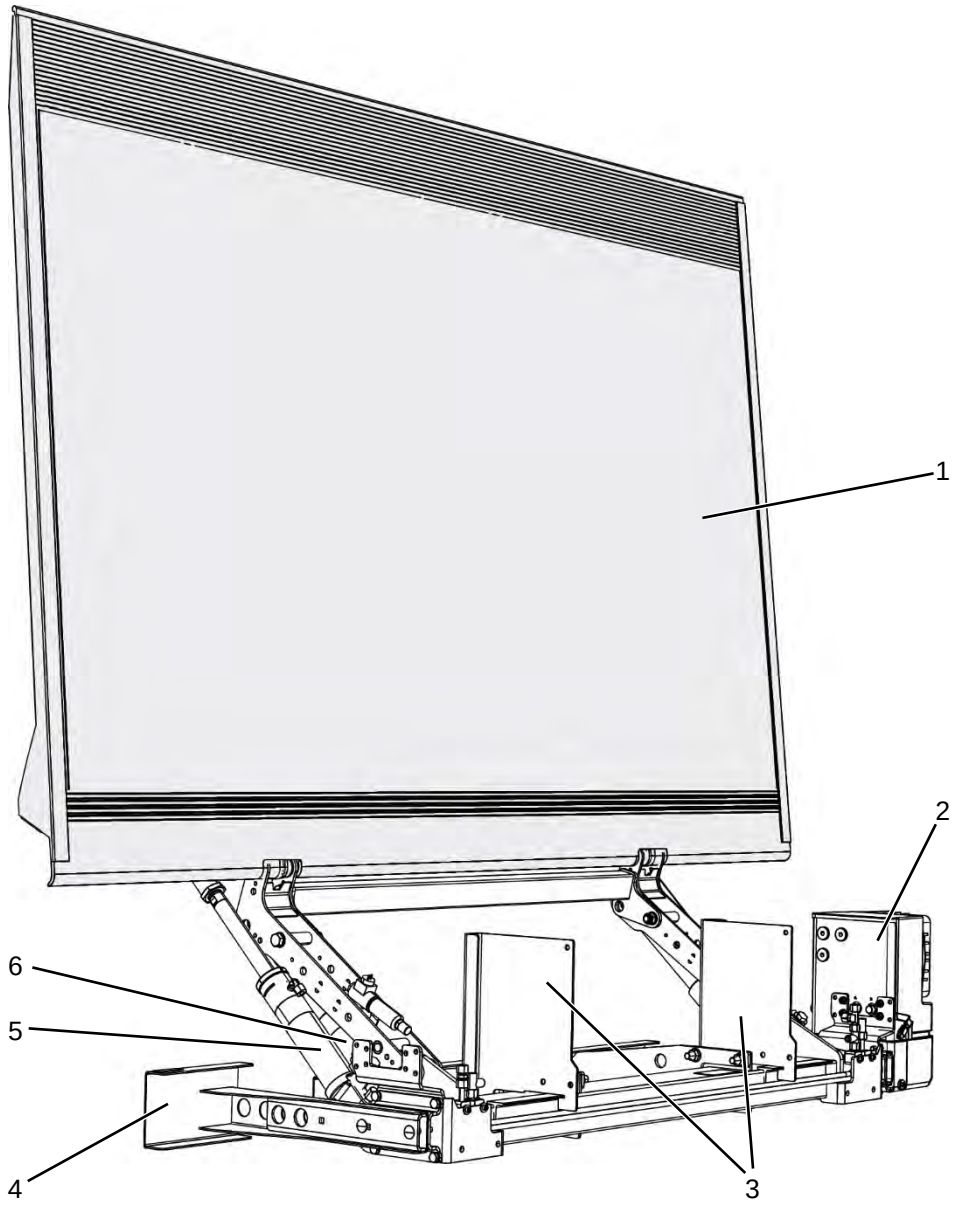


Figure 4: Tail lift with platform and turning unit

1 Platform
2 Turning unit
3 Bolted console plates
4 Underrun protection
5 Tilt cylinder
6 Lift cylinder

4.5. Tail lift without torque support

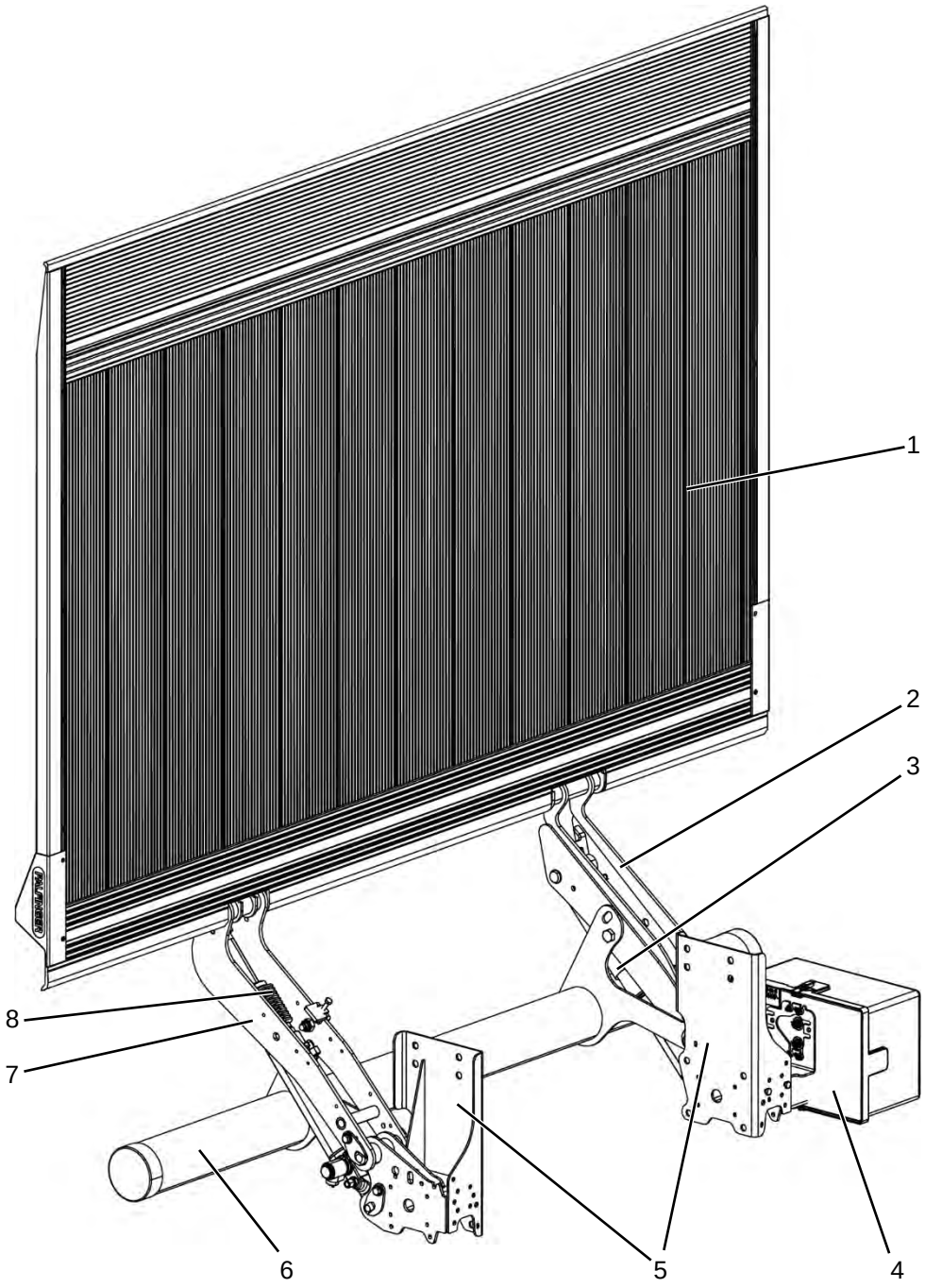


Figure 5: Tail lift without torque support

1 Platform
2 Control rod, stroke
3 Lift cylinder
4 Universal unit
5 Linkage mount
6 Underrun protection
7 Control rod, tilt
8 Tilt cylinder

4.6. Tail lift with torque support

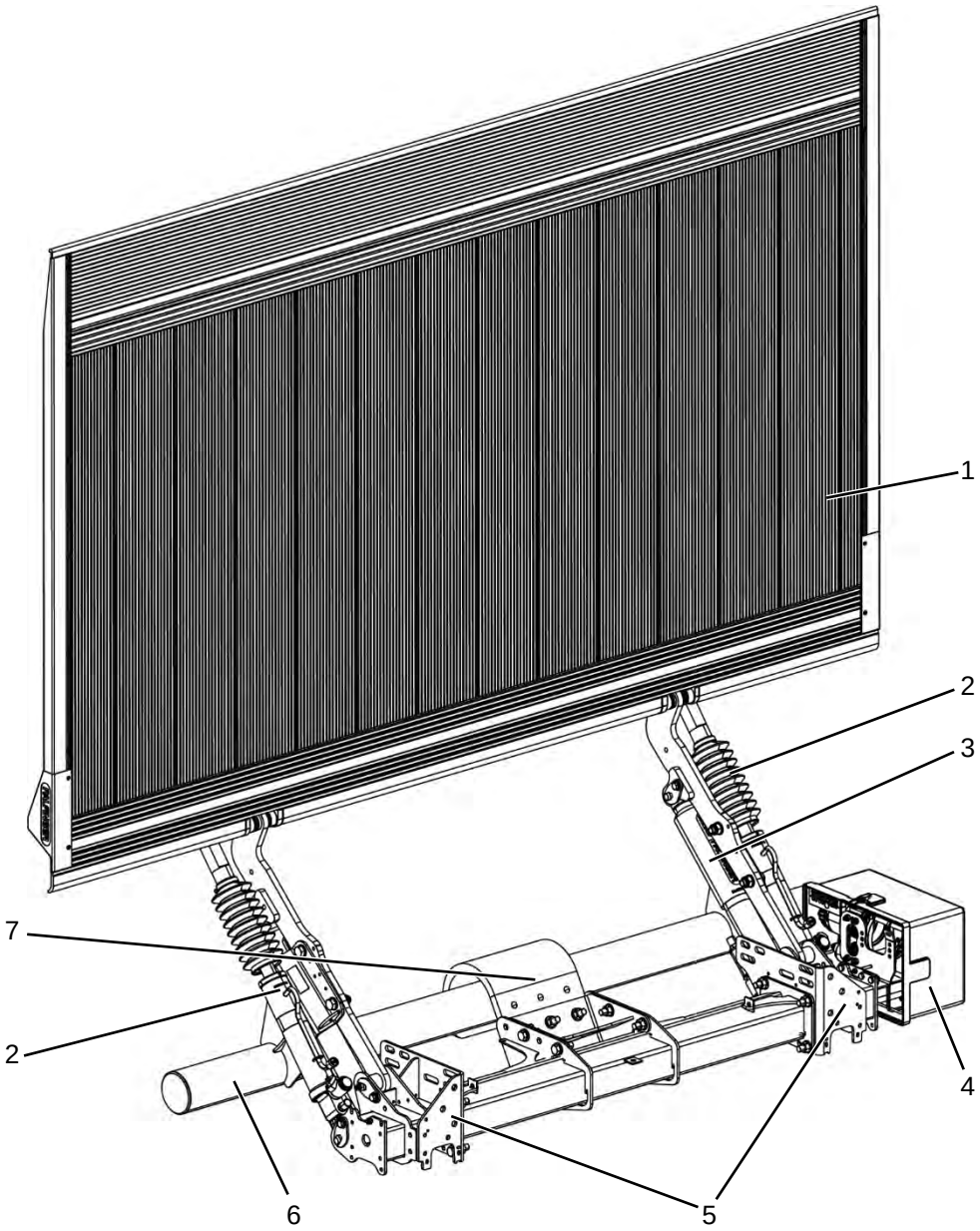


Figure 6: Tail lift with torque support

1 Platform
2 Tilt cylinder
3 Lift cylinder
4 Universal unit
5 Linkage mount
6 Underrun protection
7 Trailer hitch

5. Preparing for assembly

This chapter contains basic information about what you need to remember when preparing to assemble your **PALFINGER Tail Lifts** tail lift. This information relates to the "standard" versions of all **PALFINGER Tail Lifts** tail lift models.

► First read these assembly instructions through and then follow them step-by-step.

► You should also observe the operating manual for your **PALFINGER Tail Lifts** tail lift and in particular all the safety instructions.

► Perform all the preparatory work properly and carefully.

► If in doubt or if you have any questions, contact **PALFINGER Tail Lifts** before proceeding with work.

CAUTION!

Incorrect assembly can result in damage to the vehicle and the tail lift!

The vehicle and the tail lift may be damaged if you incorrectly assemble the tail lift.

► It is essential to comply with the vehicle maker's guidelines for mounting attachments.

► It is especially important to comply with the tail lift's maximum permitted rated load and the axle spacing for the tail lift.

► Before starting assembly work, please check the following points:

- Is the vehicle suitable for mounting the **PALFINGER Tail Lifts** tail lift? Do the vehicle dimensions correspond to those of the **PALFINGER Tail Lifts** tail lift?
- Have the attachment report (attachment diagram) been provided in accordance with your ordered **PALFINGER Tail Lifts** tail lift type?
- Is the delivered **PALFINGER Tail Lifts** tail lift consistent with your order and have all parts required for assembly been correctly delivered (see parts list)?
- Is the operating voltage of the vehicle battery appropriate for the rated voltage of the **PALFINGER Tail Lifts** tail lift?
- Is the capacity of the vehicle battery sufficient for the **Palfinger Tail Lifts** tail lift?

The following capacities are required:

Load bearing capacity	12 V	24 V
500 to 1000 kg	142 Ah	105 Ah
1500 to 3000 kg	180 Ah	180 Ah

- Are all required tools and auxiliary equipment available? Are any another special tools required?
- Do cut-outs have to be made for the lifting mechanism?
- Should a seal be installed in vehicles with a box body without rear doors? If this is the case, the platform must be set at a distance (procedure: see note on page 37).
- Is the use of trailers planned? If yes, sufficient space for the trailer coupling must be available and the free movement of the drawbar must be ensured.

When all these points have been checked off, you can start with the assembly or pre-assembly (for PTC 750 L - PTC 1000 LLW) of your **PALFINGER Tail Lifts** tail lift. Assembly consists of several steps, which are described in more detail on the following pages. They include:

- preparation of vehicle or vehicle chassis (see chapter 6, page 23)
- pre-assembling/assembling lifting mechanism (see chapter 7, page 27)
- establishing electrical connections (see chapter 8, page 46)
- installing and connecting the platform (see chapter 9, page 54)
- adjusting and testing the platform (see chapter 10, page 64)

6. Preparing the vehicle

Before mounting the **PALFINGER Tail Lifts** tail lift on your vehicle, you must prepare the vehicle accordingly. The specific steps vary according to the intended purpose and the vehicle type.

Technical parameters

► Determine the most important technical parameters for the attachment of your tail lift.

These include:

- the installation height
- the required projection
- the position of the platform and lifting mechanism under the vehicle
- the fixing of installation aids
- the required space for the lifting mechanism for any offset rear lights
- the thickness of the vehicle's rear cross-member and any cut-outs required in the lower tail chassis

To prepare the vehicle for installation of the **PALFINGER Tail Lifts** tail lift, the following steps must be completed:

- removing projecting parts of the vehicle (see chapter 6.1, page 24)
- if necessary, making any necessary cut-outs for the lifting mechanism and reinforcing these (see chapter 6.2, page 24)
- reinforce the rear cross-member, if required (see chapter 6.3, page 25)

Vehicles with box bodies

Additional steps may be necessary for vehicles with box bodies or flat beds (with or without gates) (see chapter 6.4, page 25). These include:

- mounting the supplied connecting profile on the vehicle,
- preparing and mounting bridging profiles/spacers,
- mounting the optional sealing system.

6.1. Removing projecting parts of the vehicle

CAUTION!

Damage and loss of components!

If you do not safely store the removed components in a dry place, they may be damaged or lost.

► Remove the interfering components carefully from the vehicle.

► Store the removed components in a secure, dry place.

► Check the mounting position of the lifting mechanism using the attachment report (attachment diagram).

► Remove all interfering components from the vehicle. These may include:

- rear lights
- reversing lights
- license plate
- spare wheel holder
- Pallet carrier
- parts of the vehicle exhaust
- underrun protection.

► Store the removed components in a secure, dry place.

Components that are not compatible with **PALFINGER Tail Lifts** tail lift may not be reinstalled.

► Consult your vehicle maker to find alternative solutions for incompatible components.

6.2. Creating cut-outs for the lifting mechanism (optional)

For most applications you will not need any special cut-outs for the lifting mechanism. If this is necessary, however, you can obtain the dimensions for the cut-outs from the attachment report (attachment diagram) from **PALFINGER Tail Lifts**.

► Transfer the dimensions or the lifting mechanism cut-outs from the attachment diagram to the real cross-member.

► Create the cut-outs according to the attachment mounting diagram and reinforce them.

► Seal the blank body parts with rust protection and repaint them. Observe the vehicle manufacturer's superstructure guidelines.

6.3. Reinforcing rear cross-member (optional)

Your truck's rear cross-member must be rated for your ordered type of **PALFINGER Tail Lifts** tail lift. The rear cross-member of your vehicle should be capable of carrying twice the load capacity of your **PALFINGER Tail Lifts** tail lift (e.g. about 2000 kg for a 1000K tail lift).

If the rated load of the rear cross-member is insufficient for the ordered **PALFINGER Tail Lifts** tail lift, you may have to reinforce it.

6.4. Preparing vehicles with box bodies

Mounting the sealing system

► A sealing system can be ordered from **PALFINGER Tail Lifts** and pre-installed for vehicles with box bodies. The sealing system is mounted according to the special assembly instructions supplied.

Note:

We recommend installing a sealing system before installing the tail lift.

Box bodies with doors

To avoid damage to box body doors, you must attach spacers and bridging profiles. You must then abut the control rod of the torsion frame to the superstructure end with the bridging profile when the doors are open.

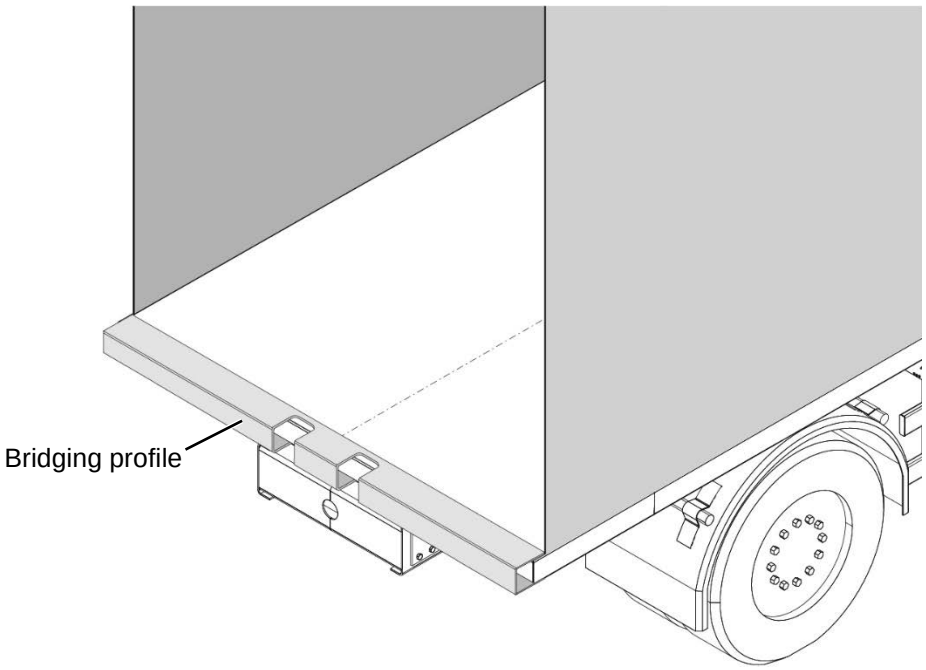


Figure 7: Bridging profile with cut-outs for door hinges

► Prepare the spacers for the lifting mechanism area (if necessary).

► Fix the spacers to the door.

► Create a bridging profile (e.g. a square tube with rounded edges 60x40x3).

► Mount the bridging profile over the entire loading area width.

7. Installing the lifting mechanism

Attachment of the lifting mechanism to the vehicle chassis depends on the type of console plates used. Tail lifts with the following console pates can be ordered from **PALFINGER Tail Lifts**:

- welded consoles
- bolted consoles

ATTENTION!

Damage to the slide-in unit during welding work!

If you do not pull out the slide-in unit before starting welding work on the stand tube, it may be damaged.

► Pull out the slide-in unit before starting welding work on the stand tube.
► Protect the slide-in unit from possible damage caused by welding.

The installation sequence differs according to the type of console plates used.

The welded consoles are attached in advance by **PALFINGER Tail Lifts** to the lifting mechanism. The customer notifies **PALFINGER Tail Lifts** of the required distances between the console plates and these cannot be subsequently changed. The lifting mechanism is attached with the console plates to the vehicle chassis.

The bolted consoles are first adjusted on the lifting mechanism to the chassis size and then fixed. Together with the lifting mechanism, they are then attached to the vehicle chassis. The long holes in the bolted consoles make transverse adjustments possible (not on PTC, SKN).

Note:

For tail lifts with bolted consoles, we recommend fitting the bracket plates to the lifting mechanism first (see chapter 7.1.2, page 30) and then carrying out the assembly of the lifting mechanism on the vehicle

Adapters are available for the fitting of the tail lift on vehicles with frames made of double-T beams. These are attached to the vehicle chassis with clamping pieces (claws) (see Figure 8, page 28).

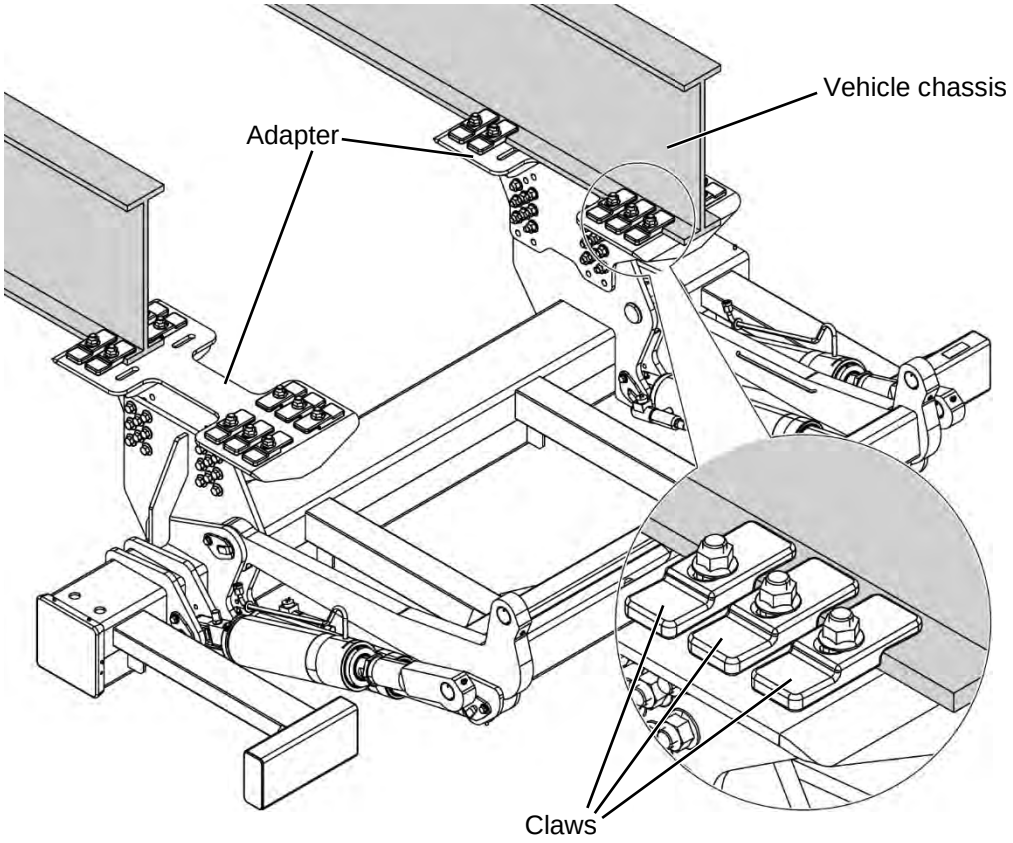


Figure 8: Attachment with adapters and clamping pieces (claws)

7.1. Pre-assembling the lifting mechanism

7.1.1. Tail lifts PTC 750 L - 1000 LLW

► Fit the console plates to the linkage mounts with the M14 bolts provided. When doing so, observe the prescribed tightening torques (see table on page 31).

► Determine the console inner dimension and compare it with the chassis width of the vehicle.

If the console inner dimension exceeds the chassis width:

► When assembling, use spacer plates between the linkage mount and the screw-on plates to reduce the console's internal dimension to the width of the chassis (exemplary presentation in Figure 9). The number of spacer plates required can be found in the table in the attachment report (attachment diagram).

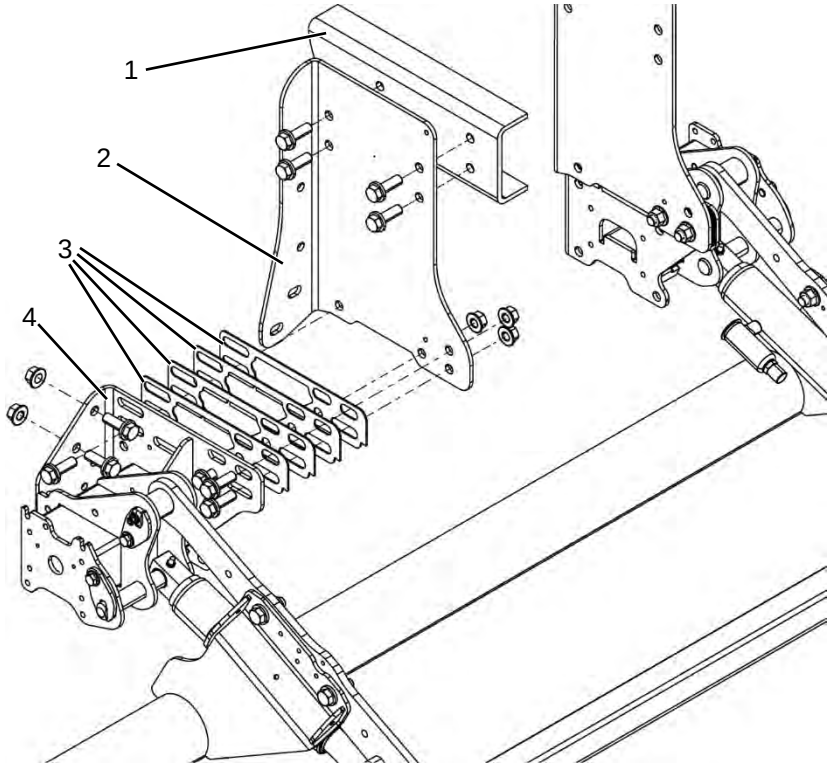


Figure 9: Spacer plates (exemplary presentation)

1 Vehicle chassis

2 Mounting plate

3 Spacer plates

4 Linkage mount

7.1.2. Tail lifts with laterally adjustable bolted consoles

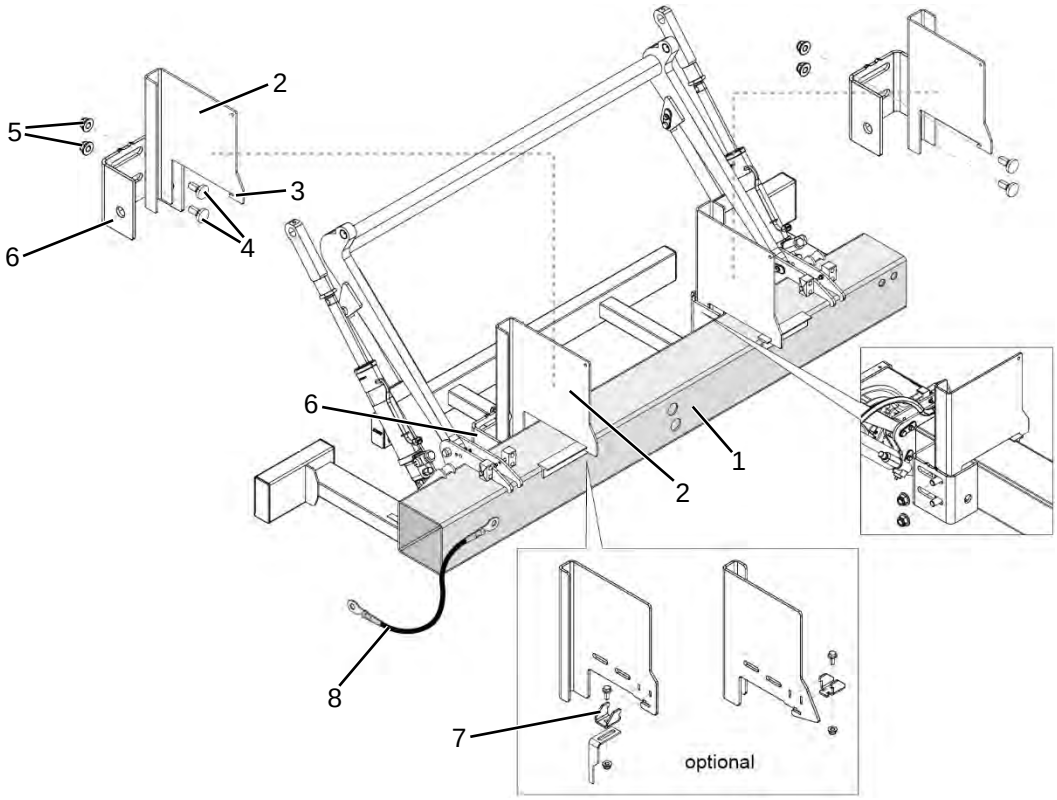


Figure 10: Pre-assembly with laterally adjustable bolted consoles

1	Stand tube	**5**	hex. nuts
2	console plate	**6**	Console plate pocket
3	hooks	**7**	Safety clips
4	Press-in screws M20x1.5 (pressed in when the tail lift is delivered)	**8**	ground cable (option)

► Optional (when using a ball head coupling and with the C 3000 S): Connect the locking clamps **(7)** to the console plate **(2)** (see Figure 10).

Note:

First clamp the safety clips **(7)** into the console plates **(2)**. Only then attach the console plates to the stand tube. When the console plates are attached, the safety clips can no longer be inserted.

► Clamp the safety clips **(7)** into the console plates **(2)**.

► Thread the console plate pockets **(2)** with the bolts **(4)** and the hook **(3)** into the console plate pockets **(6)**.

► Screw the console plate pockets **(2)** with the bolts **(4)** and the hexagon nuts **(5)** in the console plate pockets **(6)**.

► Align the two console plates corresponding to the frame width and pre-tighten the hex. nuts.

► Mount the lifting mechanism as described from the chapter “Attachment of the lifting mechanism to the vehicle”, page 33.

► Tighten the hexagon nuts (5).

► Optional (when using a ball head coupling and with the C 3000 S): Screw the locking clamps **(7)** by means of the hex. screw and nut to the stand tube **(1)**.

► Note the following tightening torques.

Bolts	**Tightening torque**
Press-in bolt M20x1.5 - St10.9	400 Nm
Bolt M14x1.5 - St10.9	190 Nm
Bolt M10 - St8.8	50 Nm

The bolts must be regularly retightened regularly:

- after 3 weeks in operation
- after 3 months in operation
- check and if necessary retighten half-yearly.

Reinforcement of the bolted consoles on C 1000 S and C 1500 L

On the C 1000 S and C 1500 L tail lifts, the console plates must be reinforced with the mounting kit (item no. 2030247) (see Figure 11, page 32).

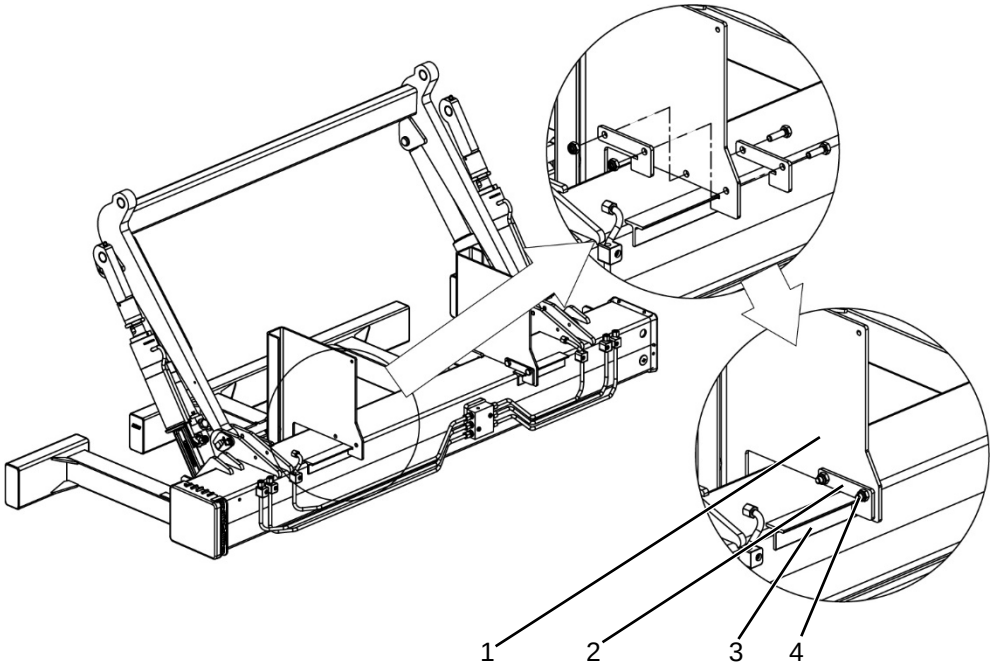


Figure 11: Reinforcement of the console plates

1	console plate	**3**	T-profile
2	Plate	**4**	Bolt/nut M10

► Place the plates against the console plates on both sides and hook them behind the T-profiles (see Figure 11).

► Screw the plates to both console plates.

7.2. Attachment of the lifting mechanism to the vehicle

To assist in the installation of the lifting mechanism of your **PALFINGER Tail Lifts** tail lift, you can on request obtain special installation aids (see Figure 12, page 33). This installation aids support you in mounting the lifting mechanism.

The installation aids each have four lugs with holes of different sizes. When the lifting mechanism is positioned under the vehicle and the torsion frame is raised, the control rods of the torsion frame can be bolted to the respective matching lugs. The installation aids attached to the loading area then hold the torsion frame in position.

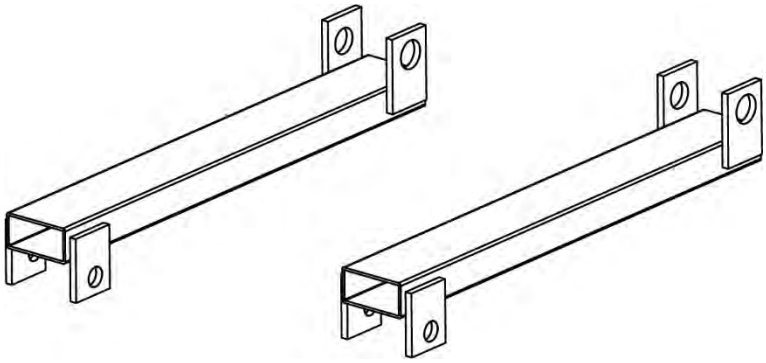


Figure 12: Installation aids

The following steps are required when installing with installation aids:

- positioning the lifting mechanism under the vehicle (see chapter 7.2.1, page 34)
- position and fix the installation aids on the vehicle chassis (see chapter 7.2.2, page 35)
- bolting the lifting mechanism to installation aids (see chapter 7.2.3, page 36)
- positioning the stand tube (see chapter 7.2.4, page 39)
- fix lifting mechanism with console plates to vehicle chassis (see chapter 7.2.5, page 41)
- mounting the hydraulic unit (see chapter 7.3, page 45)
- removing installation aids (see chapter 7.2.6, page 45)

7.2.1. Positioning lifting mechanism under the vehicle

► Raise the lifting mechanism with suitable lifting equipment such as a forklift truck or with a pallet truck, for example.

Note:

We recommend lifting the lifting mechanism on the pallet on which it is delivered and positioning it under the vehicle. This will prevent you from damaging the coating of the lifting mechanism.

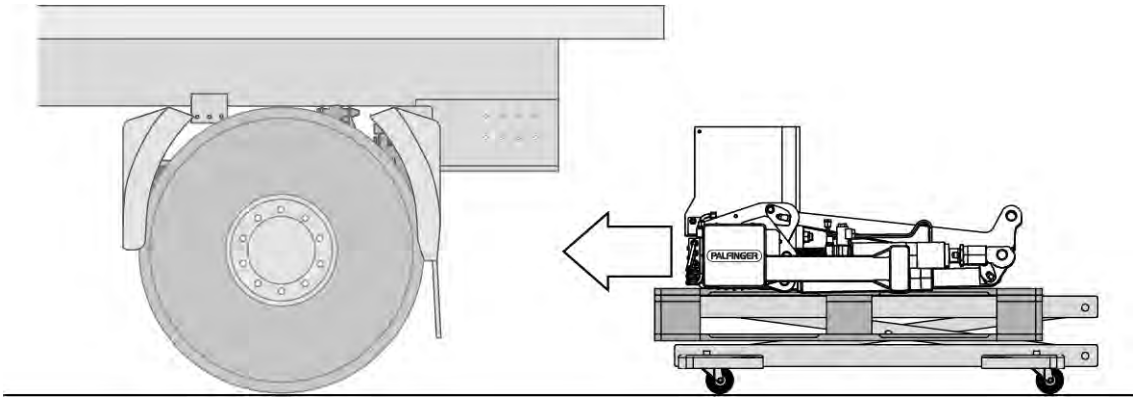


Figure 13: Positioning the lifting mechanism

► Carefully position the lifting mechanism under the vehicle (see Figure 13).

► Detach the cables and hoses and feed them through the openings provided in the vehicle chassis.

► Carefully raise the lifting mechanism and move it into the installation position.

► Maintain the installation position with the lifting equipment until the lifting mechanism is finally fixed to the vehicle chassis.

7.2.2. Positioning and fixing the installation aids on the vehicle chassis

CAUTION!

Danger of injury!

If you incorrectly position the installation aids or do not fix it correctly, the torsion frame may fall. Personal and material damage are possible.

► Make sure that the installation aids are correctly positioned and properly fixed.

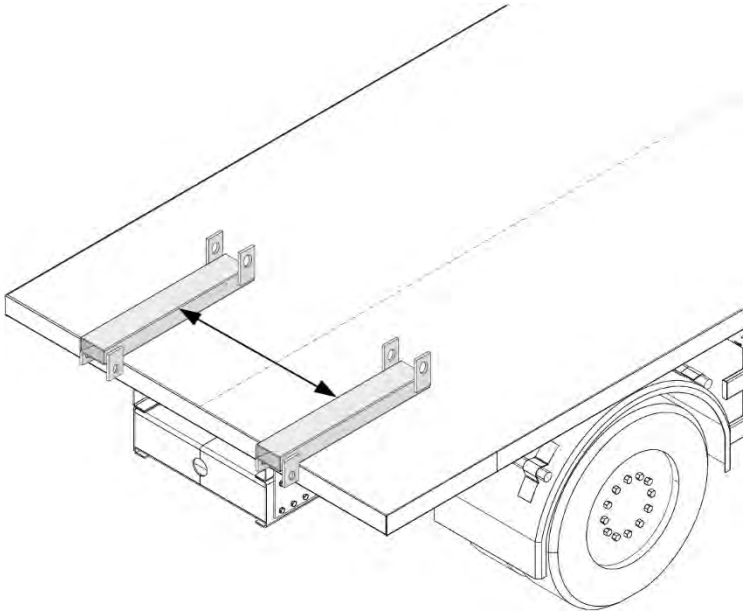


Figure 14: Positioning the installation aids

► Lay the installation aids on the loading area.

► Align the side of the installation aids so that the appropriate shackle rests against the side of the raised control rod and can be bolted securely.

► Securely fix the installation aids to the vehicle chassis with, for example, screw clamps.

7.2.3. Bolting the lifting mechanism to the installation aid

► Make sure that the lifting mechanism is in its final installation position.

► With a sealing system, fit 25 mm spacers to ensure the correct distance between the torsion frame control rods and the vehicle chassis (see note on page 37).

Note:
We recommend installing a sealing system before installing the tail lift.

► Secure the position of the lifting mechanism to the vehicle chassis with screw clamps.

► Lay the cables and hoses under the vehicle chassis. Route the cables and hoses so that they cannot be damaged by movements of the tail lift or the vehicle.

► Bolt the lifting mechanism with the installation aid (see Figure 15).

► Check the alignment to the vehicle body. Both control rods of the torsion frame must be flush with the rear-cross member.

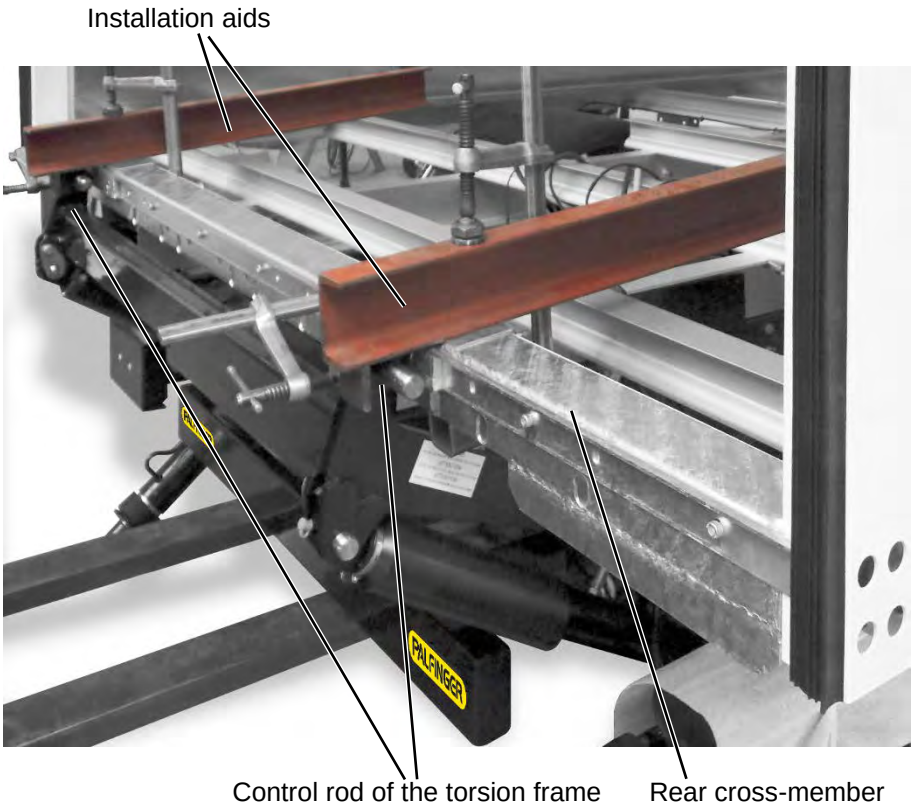


Figure 15: Bolting the lifting mechanism and installation aids

Note:

When attaching a plastic-coated platform:

► Place 2 mm plates between the control rods of the torsion frame and the superstructure as spacers (see Figure 16).

This is necessary because otherwise the platform will stand too high after assembly.

When attaching a sealing system to the box body:

► Place 25 mm spacers between the control rods of the torsion frame and the superstructure.

This is necessary so that there is enough space for the sealing system between the superstructure and the closed platform.

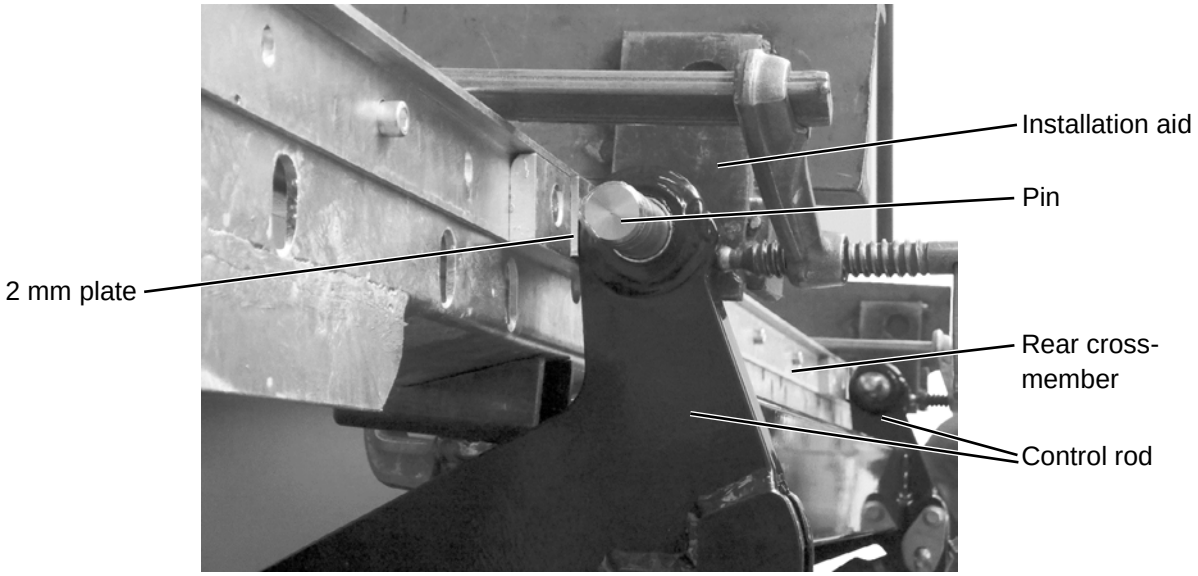


Figure 16: 2 mm spacer plates for assembly of a coated platform

► Check that the lifting mechanism is exactly centred at the sides (see Figure 17 and Figure 18, page 38).

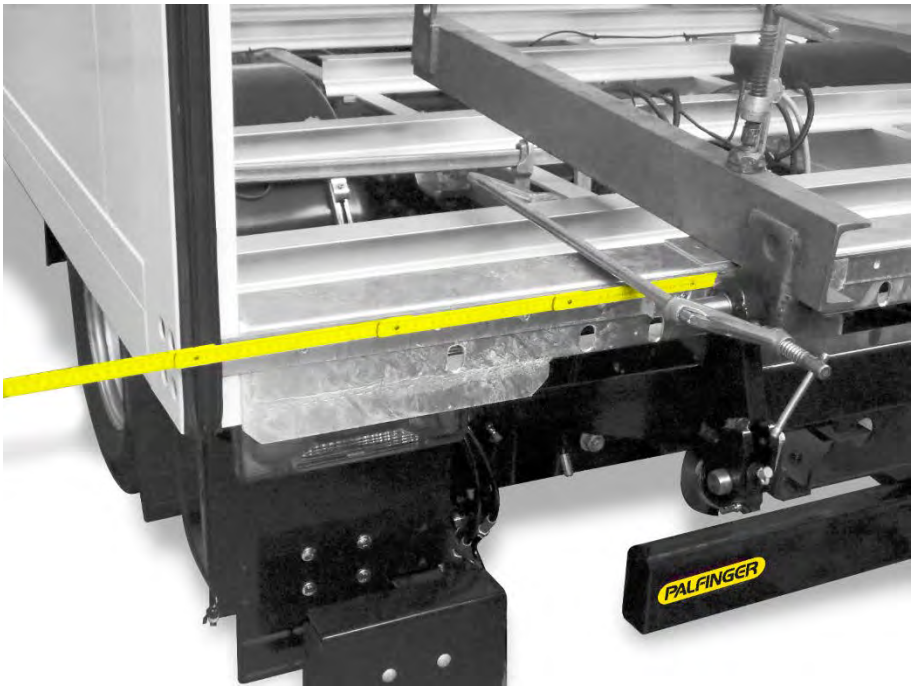


Figure 17: Check the central position of the lifting mechanism (1)

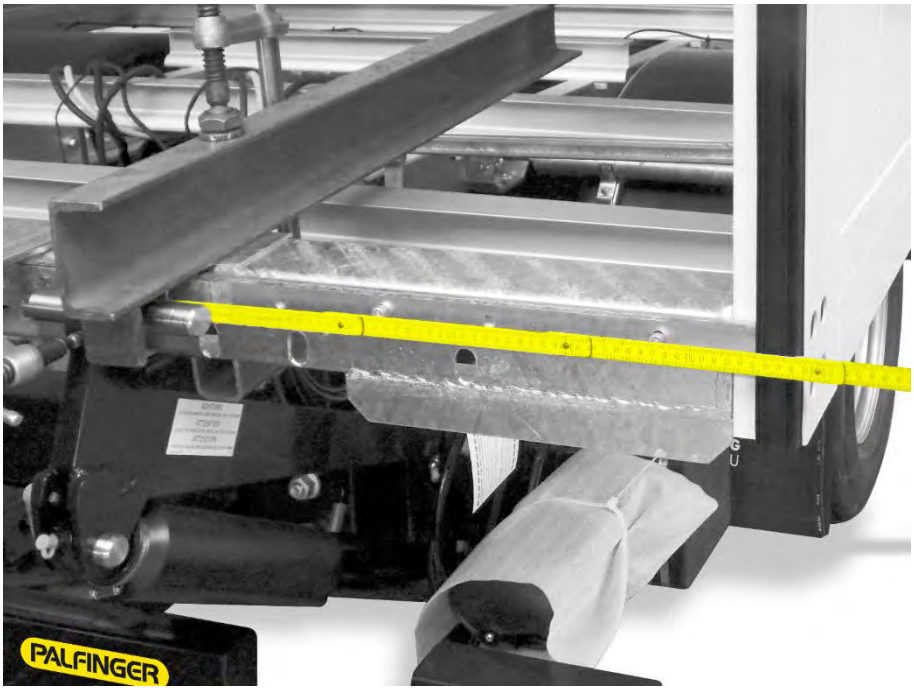


Figure 18: Check the central position of the lifting mechanism (2)

7.2.4. Positioning the stand tube / linkage mounts

► Position the stand tube / linkage mounts at a height according to the specified dimensions in the attachment report (dimensions "F", "G" and "H" in the attachment diagram, see Figure 19).

Note:

The dimensions "F", "G" and "H" must be strictly observed during assembly!

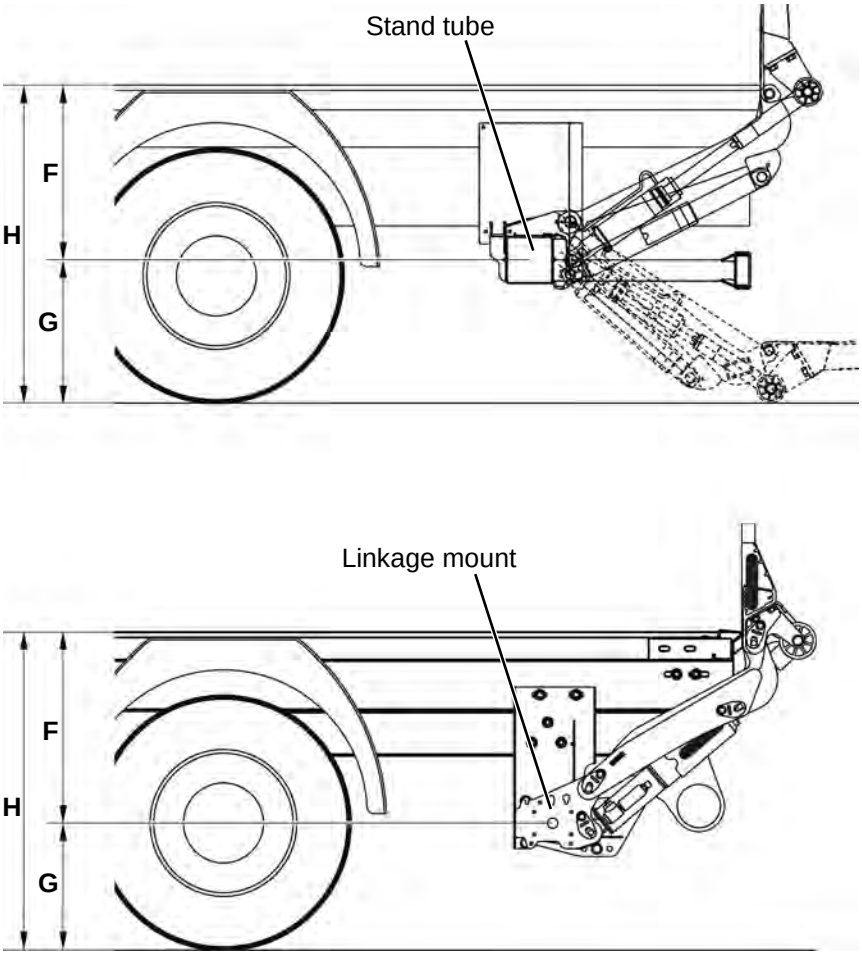


Figure 19: Positioning the stand tube / linkage mounts

► Bring the stand tube / linkage mounts into a horizontal position (aligned with the vehicle body).

► Secure the stand tube / linkage mounts to the vehicle frame in this position with screw clamps (see Figure 20, page 40).

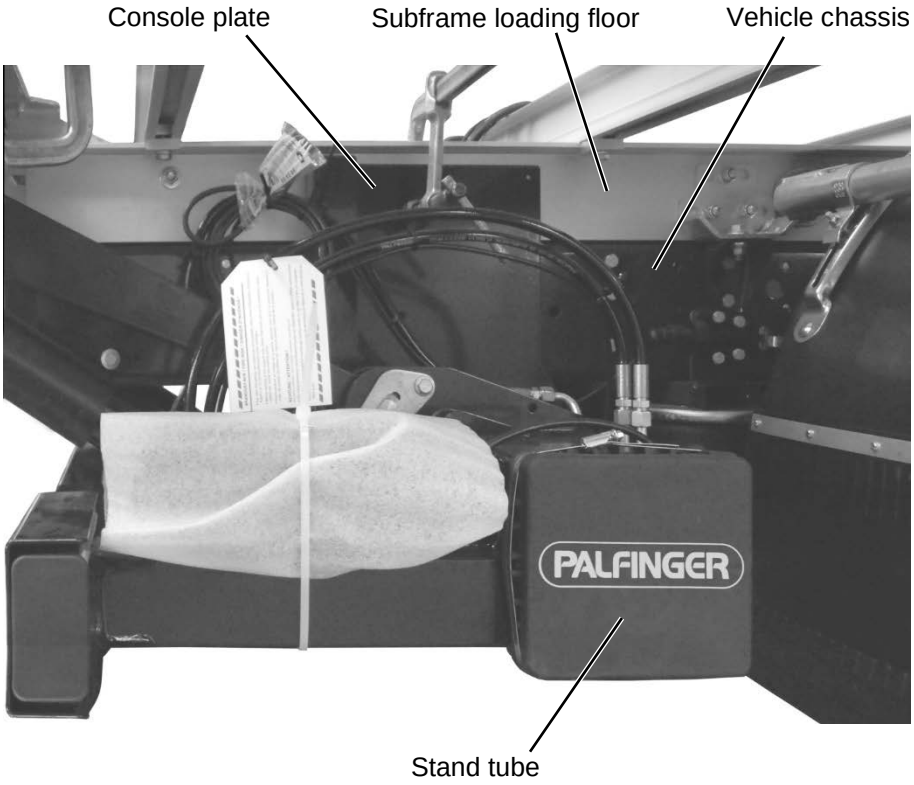


Figure 20: Positioning the stand tube

► Check the lateral position of the lifting mechanism again.

7.2.5. Fixing the console plates on the vehicle chassis

Determining the arrangement, number and size of the fixing holes

Depending on the type of tail lift, the permitted payload and the presence of a ball head coupling, the attachment of the console plates to the vehicle is subject to different loads during operation. The size, quality and number of fixing bolts and their distance from each other must be chosen accordingly.

DANGER!

Dangers due to an improperly fixed tail lift!

If the console plates of the tail lift are fastened to the vehicle with too few or too weakly dimensioned bolts, or if the bolts are too close together, the bolted connection cannot absorb the torque exerted by the tail lift during operation.

The tail lift can come loose. There is a risk of fatal injury as well as material damage.

- ► Observe the following table for the size, quality and number of fixing bolts.
- ► Place the fittings at a sufficient distance from each other.

DANGER!

Danger of a tail lift coming loose if overly large holes are used!

When using a hole pattern in the vehicle chassis, take care not to use holes that are too large. 16 mm holes are too large for 14 mm bolts! The tail lift can later shift and become loose if too large holes are used.

- ► Use only matching holes in the hole pattern of the frame (e.g. 14 mm holes for 14 mm bolts).
- ► Re-drill through the frame if the holes in the frame hole pattern are too large.

Note:

Some vehicle manufacturers have special requirements for the attachment of the tail lift to the vehicle.

- ► Observe the vehicle manufacturer's installation guidelines for bolting the console plates to the vehicle chassis.

Type of tail lift	Number of bolts per console plate	Bolt type	Tightening torque
C 500 SD	6 4	M12x1.5 – St10.9 M14x1.5 - St10.9	110 Nm 190 Nm
C 500 SPLD/SPRD			
C 750 SPL/SPR			
C 750 S			
C 500 LD			
C750 L			
C 750 LG			
C 750 LD			
C 1000 ML (PRO)			
PTC 750 L			
PTC 750 S			
PTC 1000 LLW			
PTC 750 L (with ball head coupling)	6	M14x1.5 - St10.9	190 Nm
PTC 750 S (with ball head coupling)			
PTC 1000 LLW (with ball head coupling)			
C 750 SPLD/SPRD	6	M14x1.5 - St10.9	190 Nm
C 1000 SPL/SPR			
C 1000 LD			
C 1000 L			
C 1500 L			
C 1500 ML PRO			

Type of tail lift	Number of bolts per console plate	Bolt type	Tightening torque
C 1500 S	10	M14x1.5 - St10.9	190 Nm
C 1500 LX – C 2000 LX			
C 1500 SZ			
C 2000 LZ			
C 2000 SK – C 2500 SK			
C 2000 L – C 2500 L			
C 2000 LX PTG			
C 2500 S	14	M14x1.5 - St10.9	190 Nm
C 2500 SK			
C 2500 SD			
C 2500 SZ			
C 3000 S			

► Determine the arrangement and number of mounting holes for the console plates on the vehicle chassis.
Please refer to the table above.

► Determine the size of the fixing holes.
Observe the vehicle manufacturer's attachment guidelines.

► Mark out the holes.

When using a hole pattern on the vehicle chassis:

► Make sure that the diameter of the bolts corresponds to the diameter of the holes on the vehicle chassis.

Figure 21, page 44, shows an example of a possible arrangement of the fittings of a console plate.

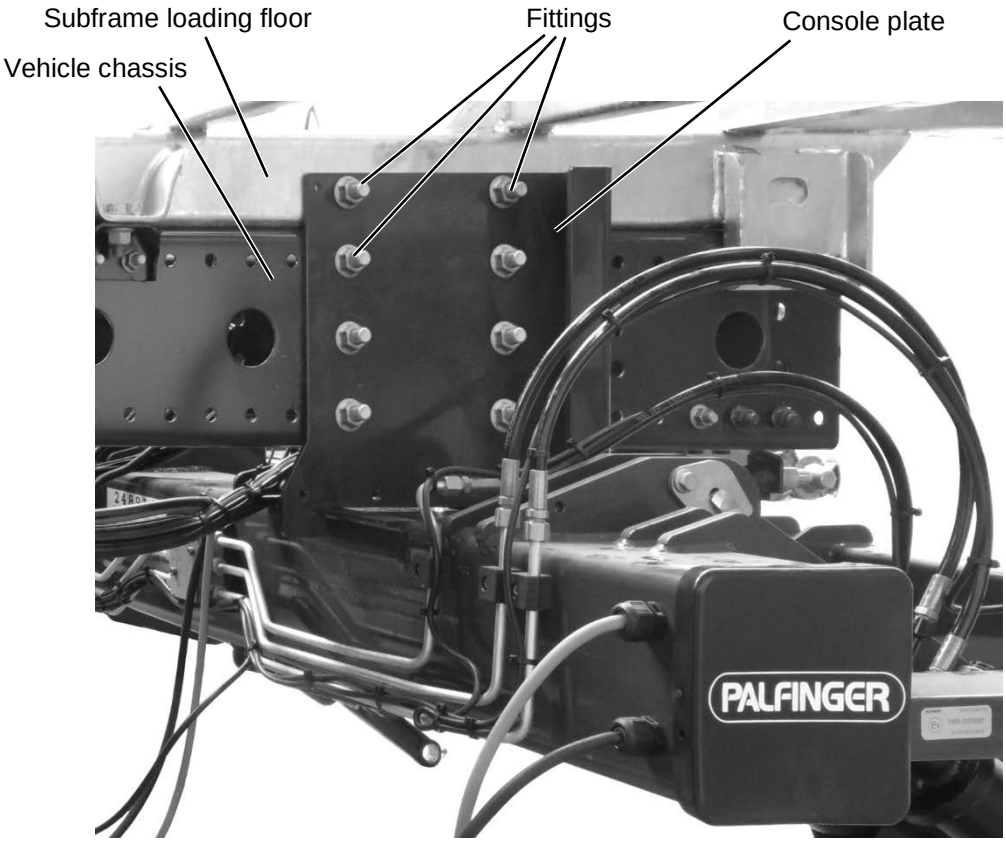


Figure 21: Bolting console plates

Drilling the holes, screwing the console plates to the vehicle frame

► Drill the holes (see Figure 22). Drill through the frame if there is no frame hole pattern.

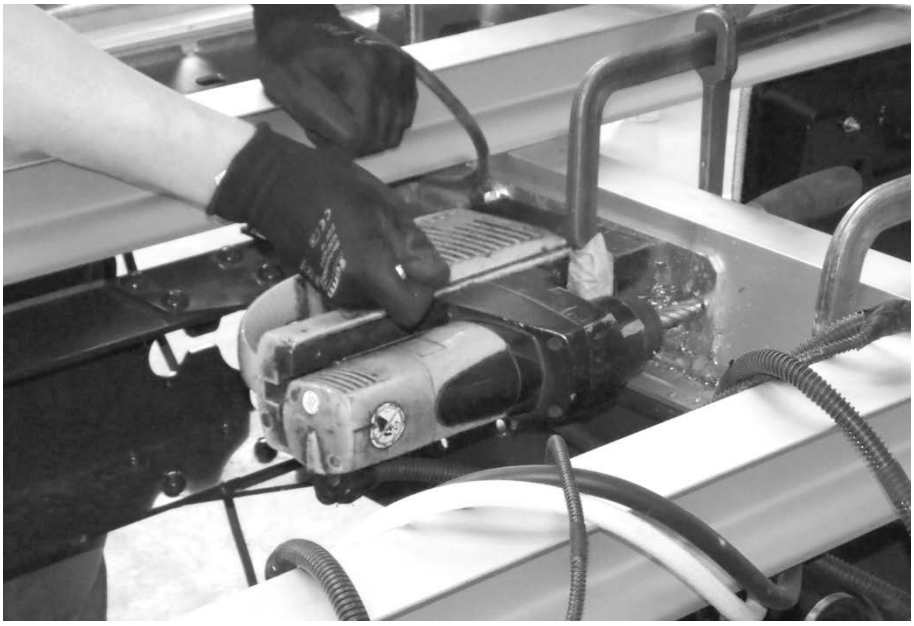


Figure 22: Drill the holes

► Bolt the console plates to the vehicle chassis (see Figure 21, page 44). Observe the tightening torques in the table on page 42.

7.2.6. Removing the installation aids

CAUTION!

Danger due to uncontrolled swinging down of the torsion frame!

Because there is still too little oil in the lift cylinders, the torsion frame can swing down uncontrollably when its control rods are released from the installation aids. There is a danger of injury. The lifting mechanism can be damaged.

► Hold the torsion frame firmly when detaching the control rods from the installation aids.
► Carefully fold down the torsion frame.

► Remove the pins between the control rods and the installation aids (see Figure 16, page 37).
► Carefully fold down the torsion frame.
► Release the screw clamps with which the installation aids are fixed to the vehicle chassis.
► Remove the installation aids from the vehicle.

7.3. Installation of the hydraulic unit

The installation of your hydraulic unit depends on the selected type. Four types are available:

- Slide-in unit
- Turning unit
- Box unit
- Universal unit

The hydraulic unit is normally pre-assembled by **PALFINGER Tail Lifts**. On request, you can also obtain a box unit with long cables and hoses. You can mount this box unit at any position under the vehicle. In this case, bundle cables and hoses that are too long and secure them under the vehicle.

8. Establishing electrical connections

Note:

Observe the vehicle manufacturer's installation guidelines for the correct design of the tail lift's power supply, especially for the taps of plus and earth.

Please also refer to the **PALFINGER Tail Lifts** electrical circuit diagram supplied. You will find a copy of the electrical wiring diagram on the controller.

The following work is required:

- establish connection to vehicle battery (see chapter 8.1)
- establishing earth connections (see chapter 8.2, page 47)
- connecting the acoustical signal generator (see chapter 8.3, page 47).
- install and connect optional control unit (see chapter 8.4, page 48)
- attaching the control panel or Slimpanel (see chapter 8.5, page 50)
- connect optional hand cable switch (see chapter 8.6, page 52)
- connect optional remote control (see chapter 8.7, page 53)

8.1. Establishing the connection to the vehicle battery

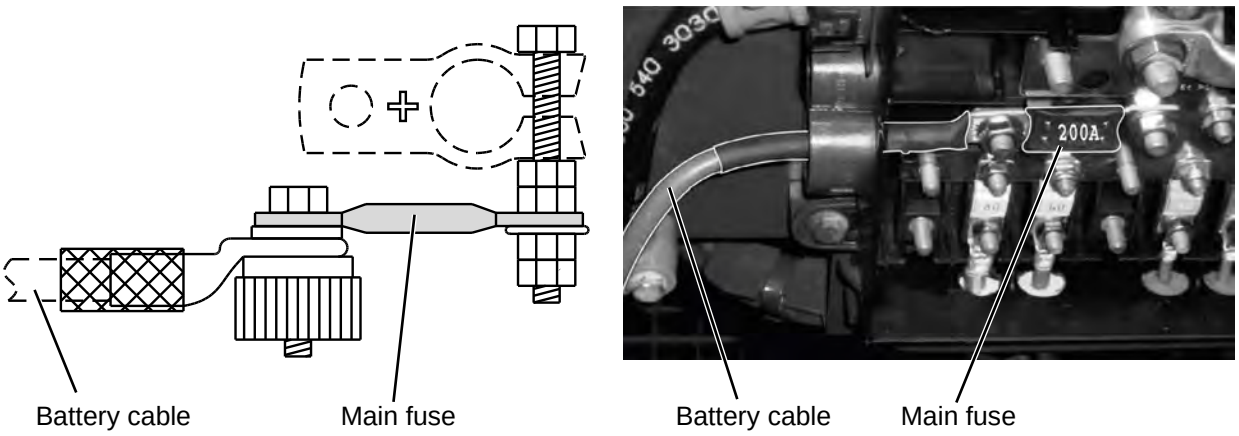


Figure 23: Battery connection

► Lay the positive battery cable to the battery or alternatively to the battery distributor (fuse box). Shorten as required.

► Attach the cable lug to the battery cable.

► Attach the main fuse with the cable lug and connect the battery cable to the battery plus terminal or alternatively to the battery distributor (see Figure 23).

Optional:

► Run the earth cable to the battery or to an earth bolt on the chassis. Shorten as required.

► Crimp the cable lug and mount it on the battery's minus terminal or on the earth bolt on the chassis.

With vehicles with preinstalled ETMA interface:

► Plug the plus and minus cables into the mating plugs.

Note:

With hazardous goods vehicles, the ground cable must be connected to the battery or in accordance with the vehicle manufacturer's guidelines for mounting attachments.

Note:

We recommend installing a battery disconnect switch to be able to disconnect the tail lift from the power supply in the event of a fault.

8.2. Establishing earth connection

If the earth cable is not directly connected to the battery, but the earth runs over the vehicle chassis: Establish an earth cable from the cable lugs and protective caps supplied.

Note:

Before connecting the ground cable, find out from the vehicle maker whether this is possible.

► Cut off the required length of cable from the supplied battery cable.

► Keep the earth cable as short as possible and attach it to the ground screw provided on the stand tube (see Figure 10, page 30, Pos. 8).

8.3. Connecting the acoustical signal generator

► According to the circuit diagram, connect the signal generator for the acoustical warning signal that sounds when the platform lowers (optional).

8.4. Installing and connecting the control unit / the indicator light

The optional control unit must be mounted in a suitable location in the driver's cab.

If a control unit is already present in the vehicle, you must connect your **PALFINGER Tail Lifts** tail lift according to a special circuit diagram, which you can obtain from **PALFINGER Tail Lifts**.

8.4.1. Control unit connection

Note:

Connection of the control device must not take place until the electrical connection of the plus and minus cable of the hydraulic unit has taken place.

► Run the cable for the control unit to the driver's cab.

► Select a suitable location on the dashboard in the driver's cab.

► Drill a hole Ø = 20.2 mm in the dashboard for the control unit (see Figure 24).

► Provide the hole with a lug on the right-hand side (anti-rotation protection for the control unit).

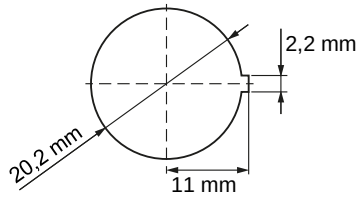


Figure 24: Hole for the control unit

► Establish an electrical connection as per the **PALFINGER Tail Lifts** circuit diagram (see also Figure 25).

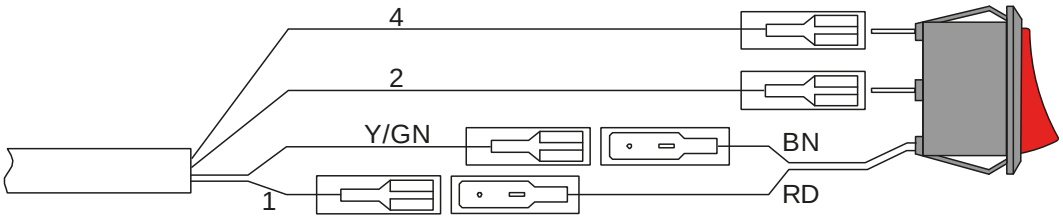


Figure 25: Control unit connection

► Insert the control unit into the dashboard.

8.4.2. Indicator lamp connection

► Mount the **PALFINGER** indicator light in the driver's cab. This indicates when the tail lift is not in the driving position (part no. 2067902, design of the hole as for the control unit, connection in accordance with the wiring diagram, see also Figure 26).

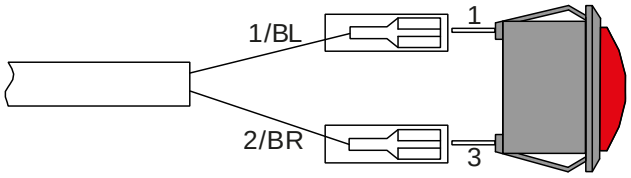


Figure 26: Indicator light connection

8.5. Attaching the control panel or Slimpanel

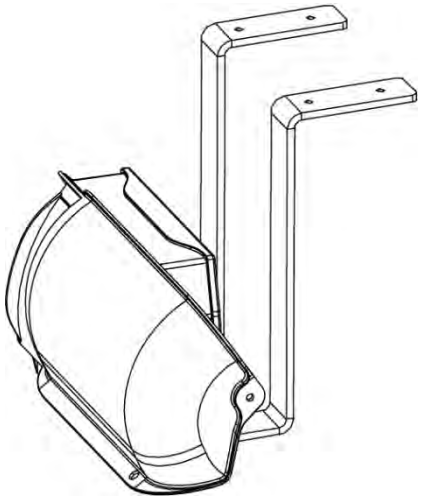


Figure 27: Control panel with control panel holder

► Fix the control panel holder or weld it in position.

► Mount the control unit on the control unit holder.

Or:

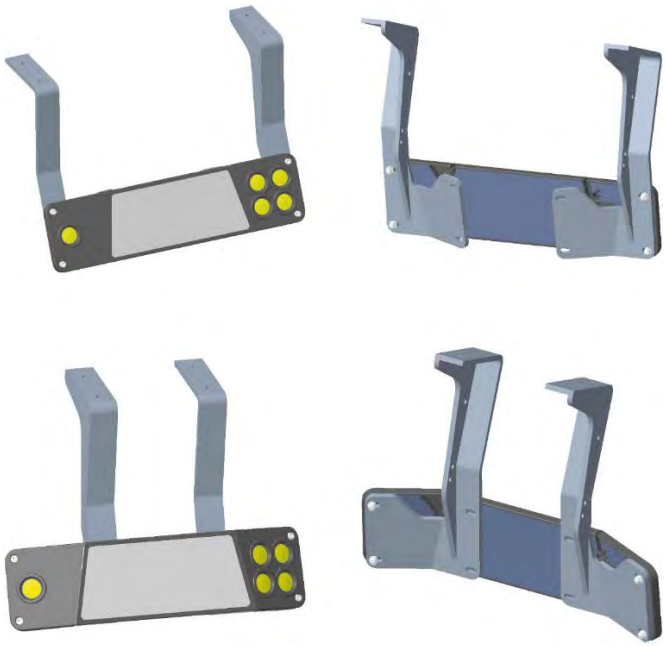


Figure 28: Slimpanel with mounting brackets

► Fit the Slimpanel with the mounting brackets provided.

Alternatively:

► Fit the Slimpanel directly to the luggage compartment of the vehicle.

Note:

When fitting the control panel and the Slimpanel, observe the requirement of the EN 1756-1 standard for the distance of operating elements from the end of the superstructure.
The distance ***L*** from the end of the superstructure to the centre of the control panel or Slimpanel must be 300 to 600 mm (see Figure 29). The operator must have an unobstructed view of the platform and the load from the operating elements.

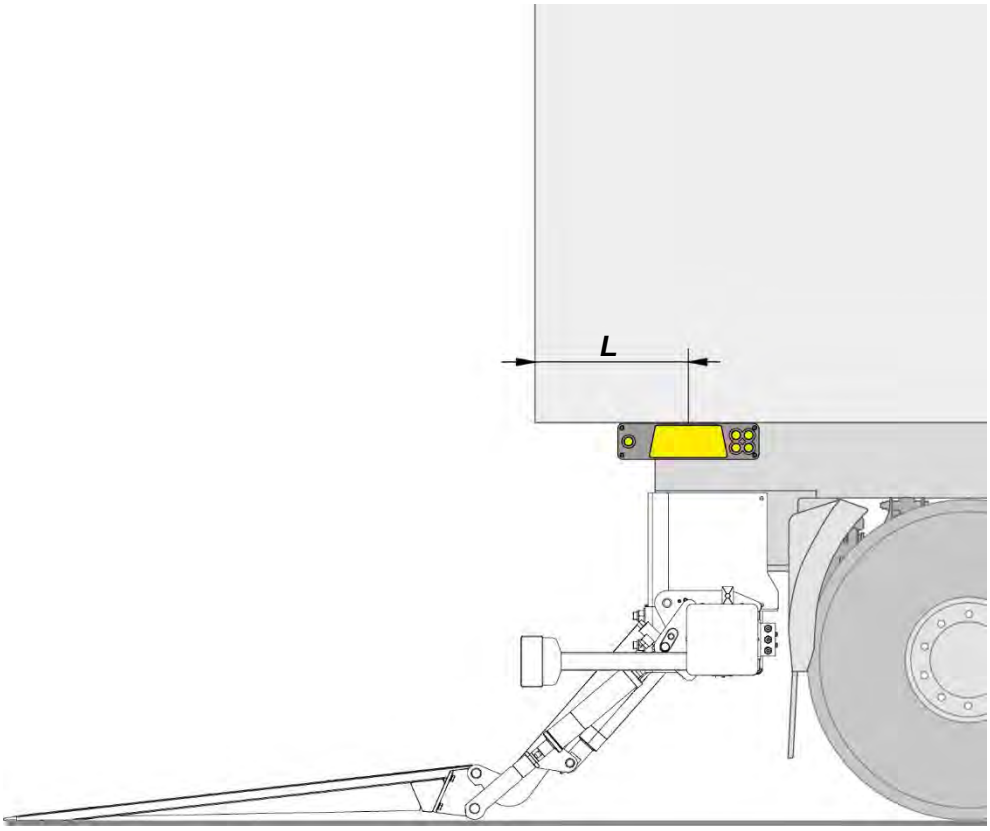


Figure 29: Slimpanel/control panel mounting position

8.6. Connecting the manual cable switch (optional)

A manual cable switch or a radio remote control are optionally available for your **PALFINGER Tail Lifts** tail lift.

Note:
When installing a manual cable switch, you must attach the cable with socket under the vehicle loading area so that the cable can be connected to the manual cable switch.

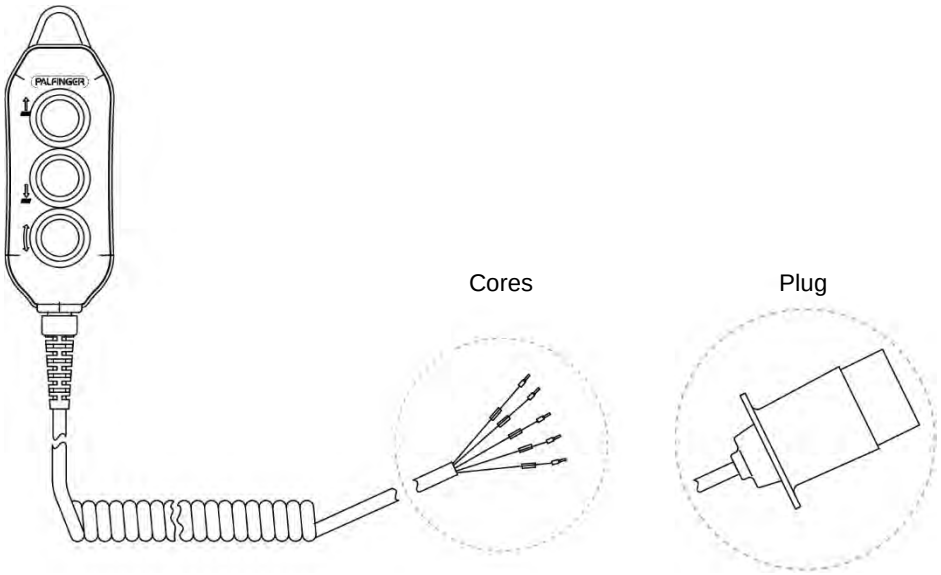


Figure 30: Manual cable switch

Lead	Pin	Leads manual cable switch	
		for three buttons	for two buttons
1	4	white	-
2	5	green	-
3	6	black	yellow
4	3	yellow	red
ye/gn	2	red	green/black

► Select a suitable place for mounting the socket under the vehicle loading bay. A fixing option is provided on most control panel holders.

► Mount the socket.

► Connect the cable from the socket in the terminal box in accordance with the **PALFINGER Tail Lifts** circuit diagram.

Note:

If the manual cable switch is on the attachment, this is not supplied with a socket but is connected via a junction box with the wire from the controller. The manual cable switch is then fixed and cannot be unplugged. The required circuit diagram is available on request from **PALFINGER Tail Lifts**.

► Find a suitable and secure storage location for the manual cable switch. Attach the supplied mounting bracket there.

► Operation of the manual cable switch only permissible from the marked position on the platform.

8.7. Radio remote control

PALFINGER Tail Lifts optionally offers the Remote Control BT radio remote control (see Figure 31).

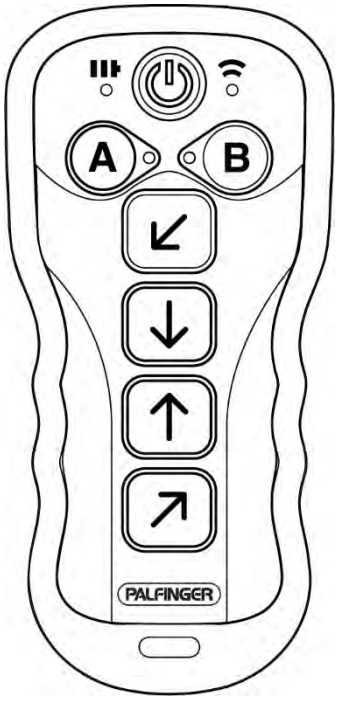


Figure 31: Remote Control BT

With a Remote Control BT, the recipient is already pre-assembled and only needs to be connected to the controller and fitted to the vehicle.

The Remote Control BT radio remote control and the corresponding receiver are matched to each other so that functionality is immediate.

► Observe the detailed assembly and operating instructions enclosed with the Remote Control BT radio remote control.

9. Installing and connecting the platform

WARNING!

Risk of injury and damage to property if the tail lift is operated without a body!

If the tail lift is operated without a vehicle body or without a loaded container, the lifting cylinder pistons can drive out of the cylinders. Risk of injury due to sudden lowering of the lifting mechanism and platform; this results in a risk of injury and of poisoning due to escaping hydraulic oil, as well as danger to the environment.

► Only operate the tail lift with its body.

The following work steps are required:

- Positioning the platform with a lifting device on the vehicle (see chapter 9.1)
- Bolting the platform to the control rod of the torsion frame (see chapter 9.2, page 56)
- Bolting the platform to the tilt cylinders (see chapter 9.3, page 57)
- Adjusting the tilt cylinders (see chapter 9.4, page 60)
- Connecting the plug for the foot switch and Warnfix, fitting the tilt sensor (see chapter 9.5, page 61)

9.1. Moving up and positioning the platform

► Raise the platform with suitable lifting equipment such as a forklift truck, for example. Pad the lifting equipment with a suitable material to prevent damage to the platform.

► Bring the platform to the rear of the vehicle.

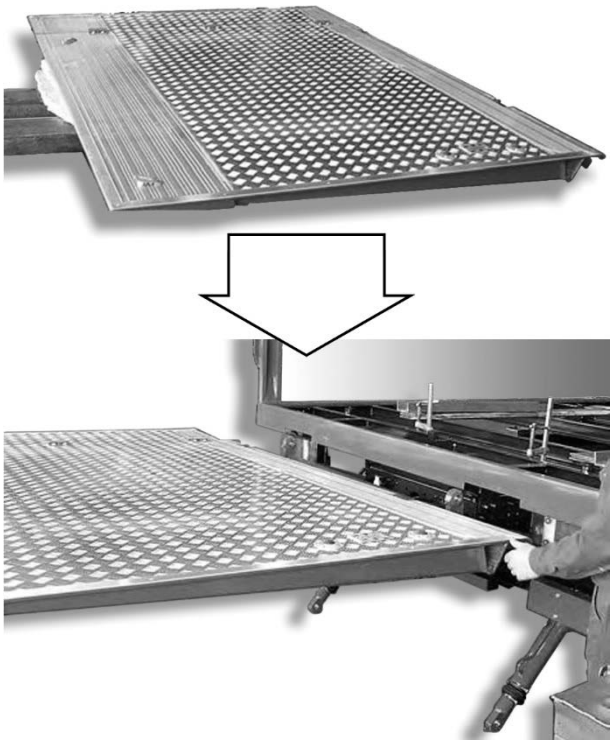


Figure 32: Bringing the platform to the rear of the vehicle

► Move the platform to the mounting position at the rear of the vehicle.

► Maintain the installation position with the lifting equipment until the platform is bolted to control rod and tilt cylinders.

9.2. Bolting the platform to the control rod

► Make sure that the platform is in its final installation position.

► Bolt the cantilever heads of the platform to the control rods of the torsion frame. Insert the spacers **provided** to align the platform centrally with the superstructure (see Figure 33).

Note:

On a type C 750 S tail lift with a 550 control rod, you may only move the platform by one disc from the centre.

You will find the type of control rod in the order confirmation.

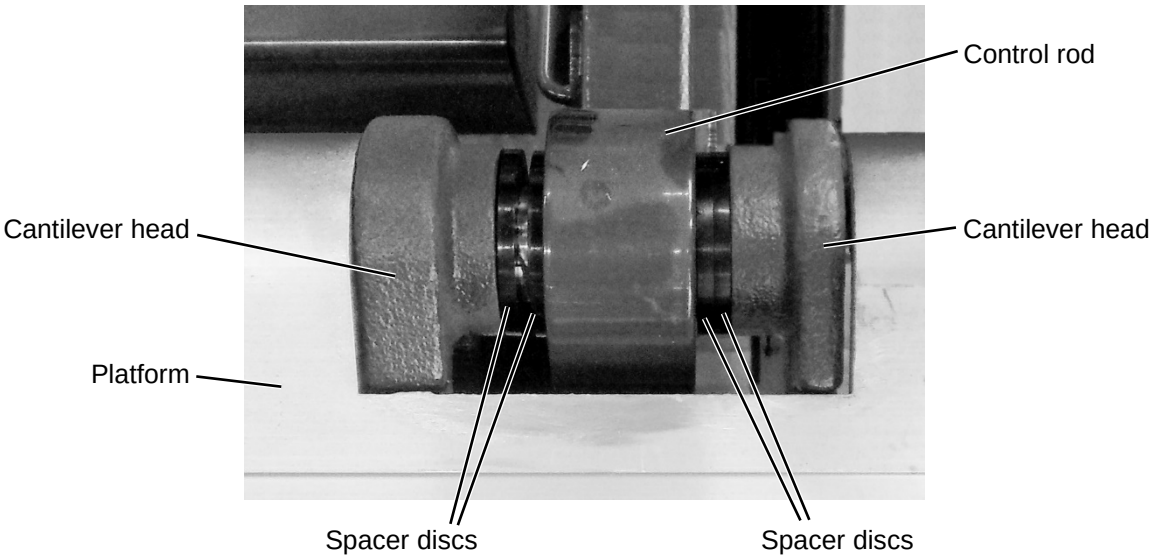


Figure 33: Spacer discs

► Push the pins through completely.

► Put the lugs on the pins. Use a hammer to knock in the lug as far as it will go (see Figure 34, page 57).

► Turn the lug to the screw-on position. Bolt on the lug with the M12 bolt. Observe the tightening torque of 75 Nm.

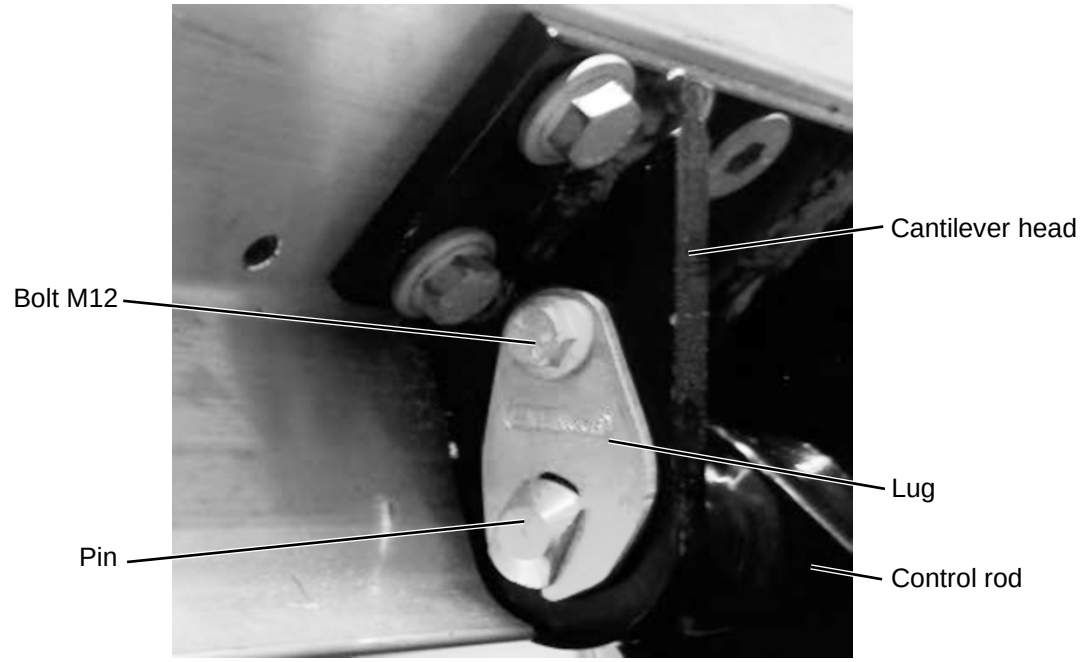


Figure 34: Pin, lug

9.3. Bolting the platform to the tilt cylinders

Depending on your tail lift model, you will need to bolt one or two tilt cylinders to the platform.

► Loosen the hose clamps of the bellows on the tilt cylinders and slide the bellows down (see Figure 35).

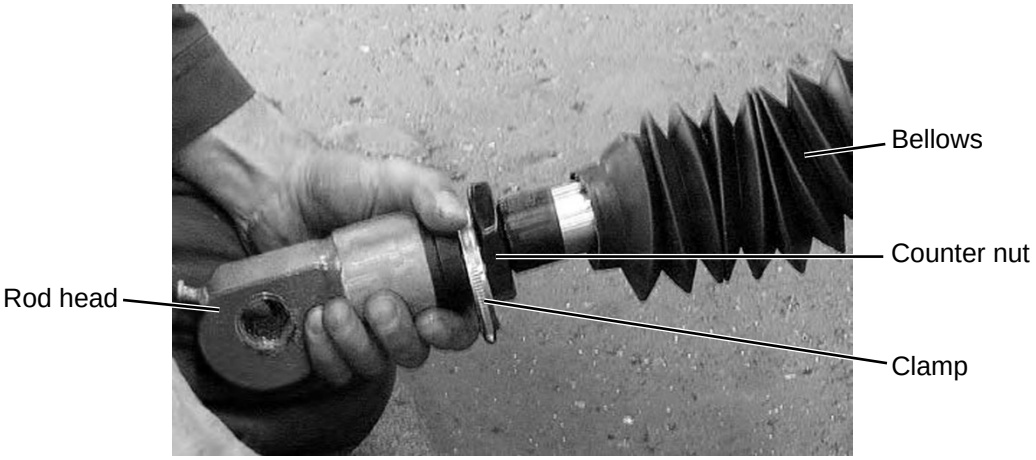


Figure 35: Tilt cylinder

► Turn the rod ends of the tilt cylinders on the piston rods as far as they will go (clockwise).

► Adjust the tilt cylinders' length so that it possible to easily bolt the tilt cylinders to the platform. Operation of the tail lift: see operating instructions.

► During this procedure, hold the

- the tilt sensor **B15** with the cable pointing downwards (not necessary with the "Basic" controller) or
- the tilt sensor **B15S** vertically with the cable outlet to the right and the snap-in bracket towards you.

Tilt sensors: see Figure 36.

Tilt sensor **B15**

Tilt sensor **B15S**

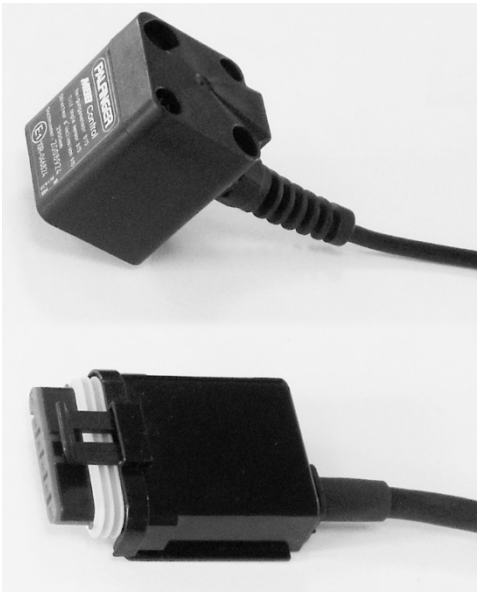


Figure 36: Tilt sensors

► Bolt the tilt cylinders to the platform. Insert the spacers provided to set the cylinder flush with the control rods of the torsion frame.

► Push the pins through completely.

► Put the lugs on the pins. Use a hammer to knock in the lug as far as it will go. Turn the lug to the screw-on position (see Figure 37, page 59).

Figure 37: Bolting the tilt cylinder

- ► Screw on the lug with the M12 bolts (Tightening torque: 70 to 75 Nm).
- ► Fit the bottom rollers and secure them on each pin/locking screw with a snap ring (see Figure 38).

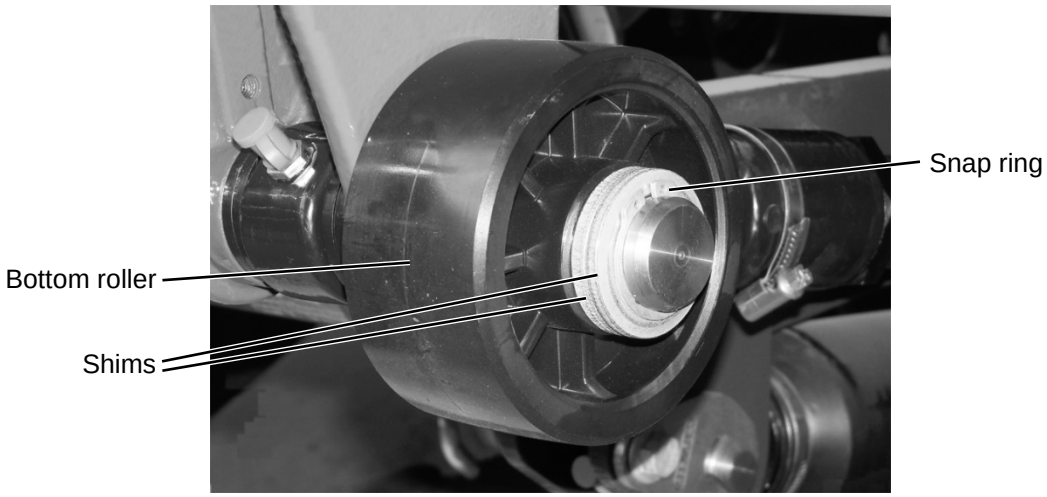


Figure 38: Installing the bottom roller

- ► Before lifting the platform, ensure that the solenoid valves on the lift cylinder have free access to the console plate pocket of the bolted console (console plate pocket: see Figure 10, page 30, pos. 6). If necessary, turn the coil on the solenoid valve to establish free travel.
- ► Move the lifting mechanism via the lift cylinder to the upper stop (see operating instructions).
- ► Remove the lifting equipment from the platform.

9.4. Adjusting the tilt cylinders

Note:
At the desired end position of the platform, the tilt cylinders must be extended to the stop.

- ► Close the platform to the extent possible (see operating instructions). The tilt cylinders are extended to the stop.
- ► Take the load off the tilt cylinders by opening the platform minimally.
- ► Move the platform to the desired end position. To do this, turn the piston rod of the tilt cylinders with a wrench (see Figure 39).

Figure 39: Twisting the piston rod

- ► Repeat the adjustment process if required, until the platform has reached the desired position.
- ► Release the tilt cylinders by opening the platform.
- ► Tighten the counter nuts of the piston rods (tightening torque: 250 to 300 Nm).
- ► Pull the bellows back over the piston rods.
- ► Secure the bellows with the hose clamps.

9.5. Installing tilt sensors

Depending on the selected equipment, the tail lift is delivered with a tilt sensor **B15** or **B15S** (see Figure 36, page 58).

9.5.1. Installing tilt sensor B15

Figure 40 shows the cover cap with sensor holder for the tilt sensor **B15** as delivered with the tail lift. The cover cap is located on the underside of the platform next to the right cantilever head. Depending on the equipment version of your tail lift, connector plugs for warning lights and foot switches come out below the cover cap.

Figure 40: Cover cap with sensor holder for tilt sensor **B15**

- ► Unscrew the cover cap.
- ► Connect the cables for warning lights and foot switch to the existing connector plugs.
- ► Place the connector plugs inside the platform.
- ► Reconnect the cover cap.
- ► Screw the tilt sensor **B15** to the sensor holder of the cover cap as presented in Figure 41, page 62, (tightening torque: 5 Nm).

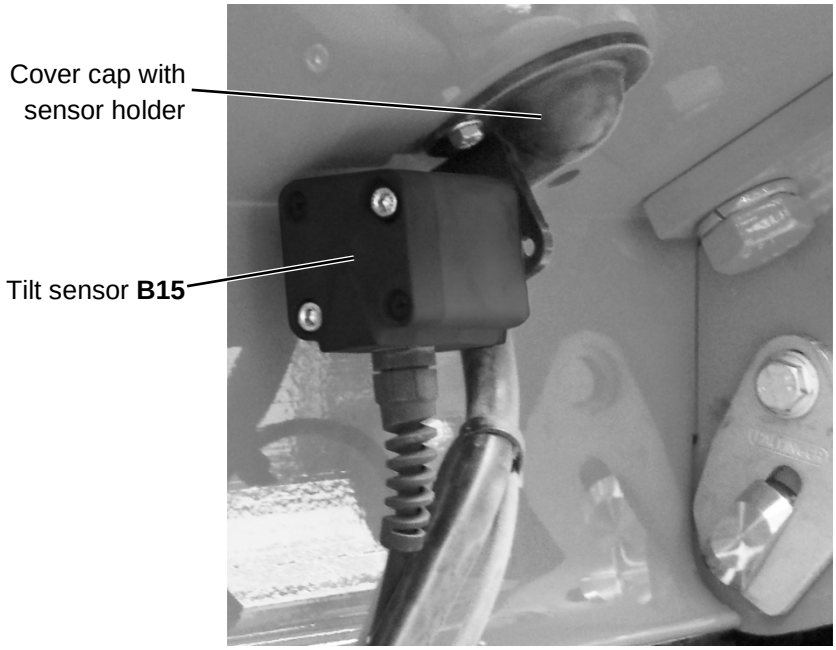


Figure 41: Cover cap with tilt sensor **B15**

- ► Lay the cable of the tilt sensor **B15** together with the cables for warning lights and foot switch along the torsion frame. Make a loop for the cable of the tilt sensor as strain relief.
- ► Attach the cables adequately to the torsion frame. Make sure that the cables are laid so that they are free to move and are not stretched or pinched when the tail lift moves.
- ► Connect the cables to the tail lift controller (see circuit diagram).

9.5.2. Installing tilt sensor B15S

For the installation of the tilt sensor **B15S**, a platform connector is provided on the underside of the platform next to the right cantilever head (see Figure 42). The platform connector and the tilt sensor **B15S** are also used to supply power to the electrical components of the platform.

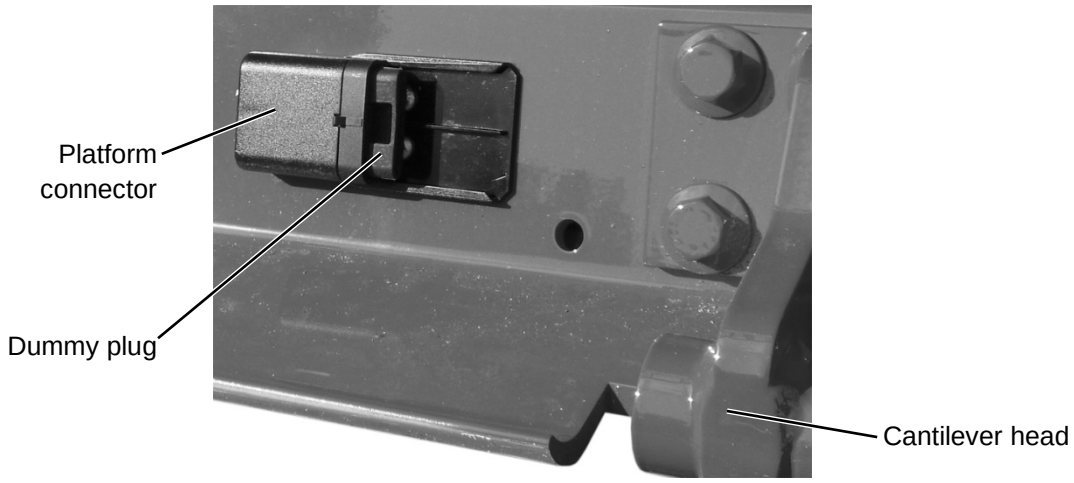


Figure 42: Platform connector

► Remove the dummy plug from the platform connector (see Figure 42).

► Insert the tilt sensor **B15S** into the platform connector until it clicks into place (see Figure 43).

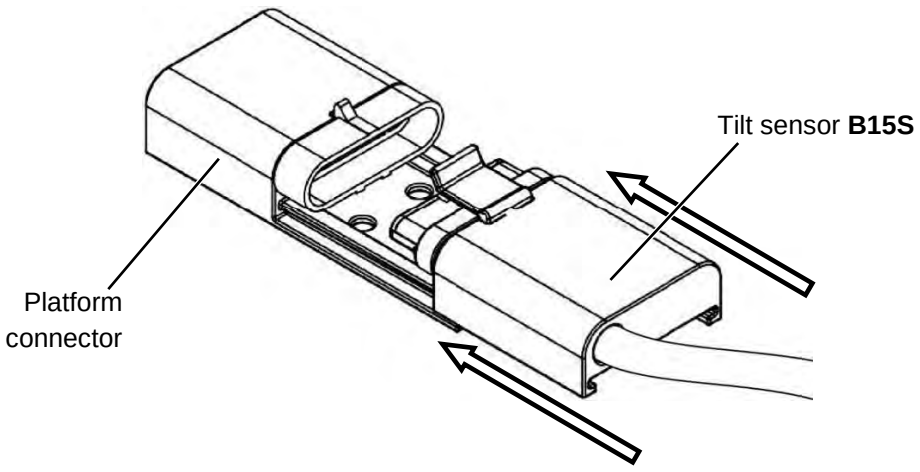


Figure 43: Installation of tilt sensor **B15S**

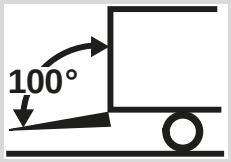
► Run the cable of the tilt sensor **B15S** along the torsion frame to the controller.
Attach the cable sufficiently to the torsion frame. Make sure that the cable is laid so that it is free to move and is not stretched or pinched when the tail lift moves.

10. Adjusting and testing installed tail lift

When you have installed your **PALFINGER Tail Lifts** tail lift, you must then adjust it and test that it is functioning properly. This entails the following jobs:

- adjusting the tilt sensor **B15** or **B15S** (**B15**: see chapter 10.1, page 64; **B15S**: see chapter 10.2, page 65).
- adjusting the tilt switch **B13** (see chapter 10.3, page 67).
- Bleeding the hydraulic cylinders (see chapter 10.4, page 68).
- on PTC 750 L, LLW: Checking alignment of the platform (see chapter 10.5, page 69).
- Performing an oil level check (see chapter 10.7, page 71).
- Lubricating the bearing (see chapter 10.8, page 72)
- Checking bolted connections (see chapter 10.9, page 72).
- Checking hoses and cables (see chapter 10.10, page 72).
- adjusting the tilt cylinder (see chapter 10.11, page 73)
- Adjusting the pressure switch of the hydraulic support (optional, see chapter 10.12, page 74).

10.1. Setting tilt sensor B15



DANGER!

Danger to life and material damage in case of improper adjustment of tilt sensor B15!

If tilt sensor **B15** is adjusted to a too steep inclination of the platform, the load may roll off the platform. There is a risk of serious or fatal injury to persons on the platform. Material damage may occur.

► Adjust tilt sensor **B15** so that the inclination of the platform is 100 degrees or less.

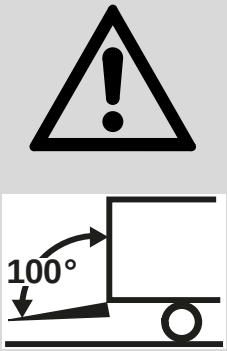
► Open the platform (see operating manual).

► Check the inclination of the platform.

If the inclination of the platform is more than 100 degrees:

► Adjust tilt sensor **B15**. To do this, use the slotted hole with which the tilt sensor is screwed to the sensor holder.

10.2. Adjusting tilt sensor B15S



DANGER!

Danger to life and material damage in case of improper adjustment of tilt sensor B15S!

If tilt sensor **B15S** is adjusted to a too steep inclination of the platform, the load may roll off the platform. There is a risk of serious or fatal injury to persons on the platform. Material damage may occur.

► Adjust tilt sensor **B15S** so that the inclination of the platform is 100 degrees or less.

Tilt sensor **B15S** can be adjusted by reprogramming it. To do this, proceed as follows:

► Open the platform (see operating manual).

► Press one of the foot switches eight times.

► If there is no foot switch available: Give a plus pulse eight times to the plug location J3, pin 6, on the controller (see Figure 44). To do this, you can tap plus from the pin next to it.

Figure 44: Controller (example image)

The 7-segment display on the controller indicates “J” for adjustment. The warning lights on the platform are lit up continuously. The current angle of the platform was taken as the reference value.

► From this platform position, move to the desired correction angle.

► Press one of the foot switches eight times.
If there is no foot switch available: Give a plus pulse eight times to the plug location J3, pin 6, on the controller. To do this, you can tap plus from the pin next to it.

The 7-segment display on the controller indicates “0” or “1”. The warning lights on the platform flash again. The new inclination of the platform is stored as a correction value.

Note:

After 60 seconds without actuation, the adjustment mode is exited. Values that are not saved are lost.

To remove the correction value again or set it to zero degrees:

► Press one of the foot switches eight times.
If there is no foot switch available: Give a plus pulse eight times to the plug location J3, pin 6, on the controller. To do this, you can tap plus from the pin next to it.

The 7-segment display on the controller indicates “J” for adjustment. The warning lights on the platform are lit up continuously.

► Disconnect the 3-pole plug of the platform sensor J41C from the controller (see Figure 44, page 65).

► Press one of the foot switches eight times.
If there is no foot switch available: Give a plus pulse eight times to the plug location J3, pin 6, on the controller. To do this, you can tap plus from the pin next to it.

The 7-segment display on the controller indicates “5”. The warning lights on the platform flash again.

► Plug connector J41C back in.

► The 7-segment display on the controller indicates “0” or “1”. the correction value is deleted.

10.3. Setting tilt switch B13

Note:
If the tilt sensor **B15** is present on the torsion frame of your tail lift, there is no need to set the tilt switch **B13**.

► Move the platform to the position horizontally approx. 250 mm above the ground as presented in Figure 45, page 67.

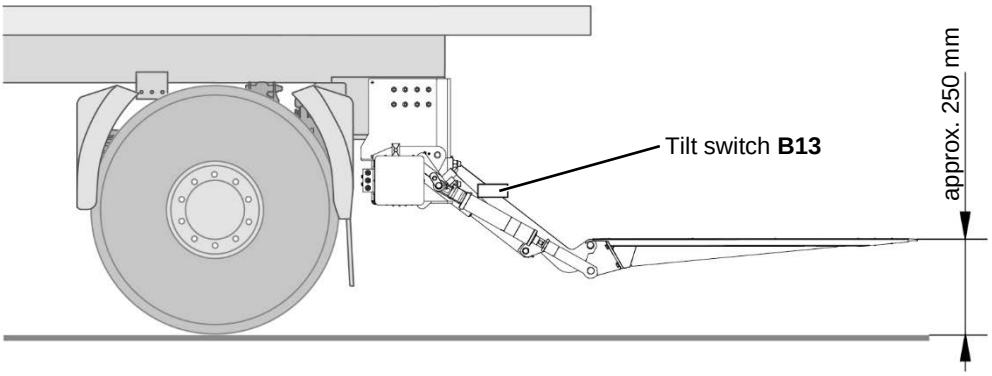


Figure 45: Tilt switch **B13** (1)

► Release the screw on tilt switch **B13** on the right control rod of the torsion frame (see Figure 46).

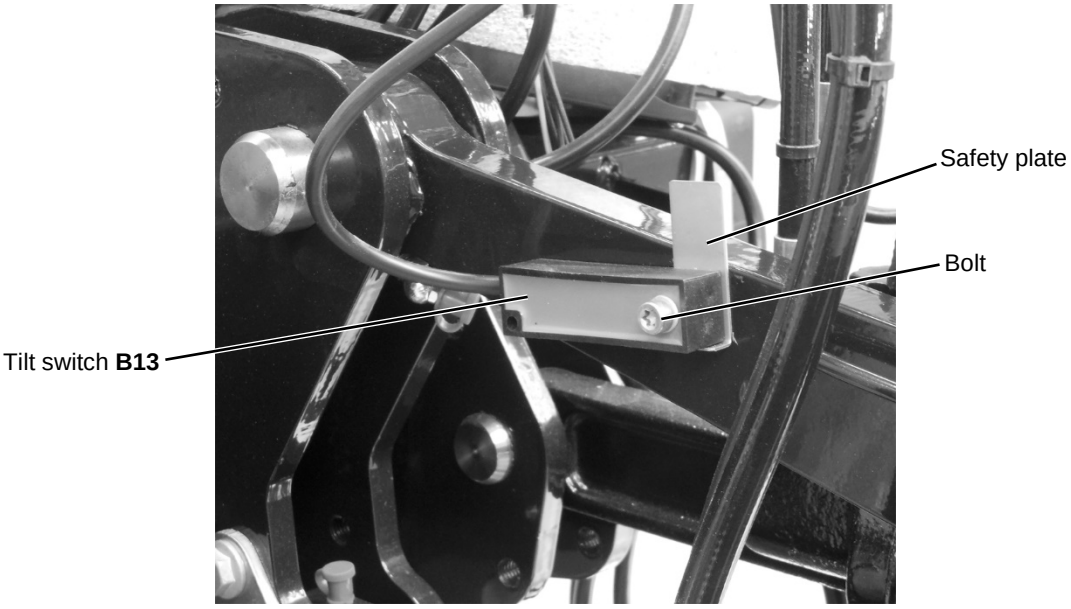


Figure 46: Tilt switch **B13** (2)

► Adjust tilt switch **B13** so that it is exactly horizontal.

► Retighten the screw on tilt switch **B13**. Observe the tightening torque of 9 Nm.

► Edge the safety plate over the control rod of the torsion frame so that tilt switch **B13** is secured in position.

10.4. Bleeding the hydraulic cylinders

To bleed the hydraulic cylinders of the tail lift:

► Switch on the tail lift (see operating instructions).

► Raise and lower the platform several times. Load the platform with the nominal load.

► Open and close the platform several times.

► Extend and retract the hydraulic props several times (optional).

Note:

Special procedure for bleeding the hydraulic cylinders when the distance between the lifting mechanism and the ground is small.

► Proceed as described in chapter 10.5, page 69, if the distance from the lifting mechanism to the ground is small (dimension "G" from the centre of the stand tube/linkage mount to the ground is less than 450 mm, see Figure 47).

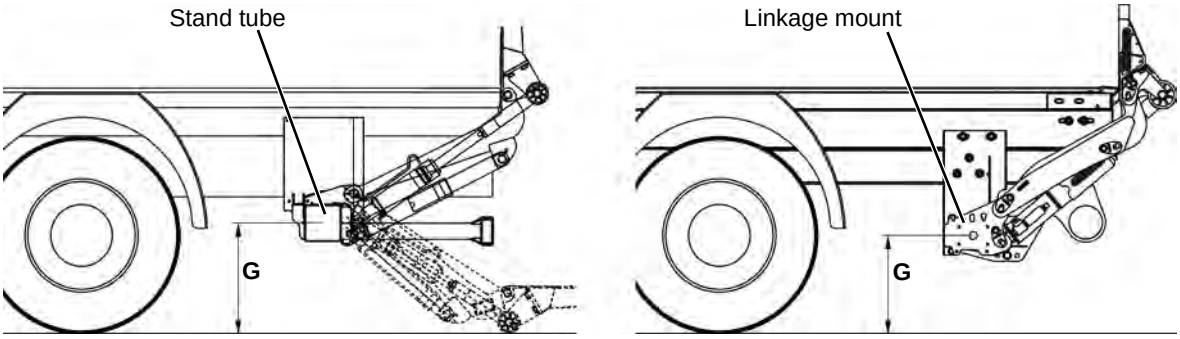


Figure 47: Distance between the lifting mechanism and the ground (dimension "G")

10.5. Bleeding the hydraulic cylinder (G < 450 mm)

Special procedure if the distance between the lifting mechanism and the ground is small (dimension "G" from the centre of the stand tube/linkage mount to the ground is less than 450 mm, see Figure 47, page 68):

- ► Raise the rear of the vehicle, for example by driving the rear wheels onto ramps.
- ► Switch on the tail lift (see operating instructions).
- ► Open the platform until it is approx. 90 degrees open.
- ► Lower the platform.

Once the platform is about halfway down:

- ► Open the platform further so that its top slopes further down.
- ► Lower the platform completely.
- ► Close the platform completely again.
- ► Repeat this procedure two to three more times.
- ► Close the platform completely again.

The hydraulic cylinders are bled.

10.6. Checking alignment of the platform (only PTC 750 L, LLW)

► Move the platform horizontally to the end stop of the case and then back again a few millimetres.

► Position the platform parallel to the end stop using the adjusting screw on the tilt link (see Figure 48).

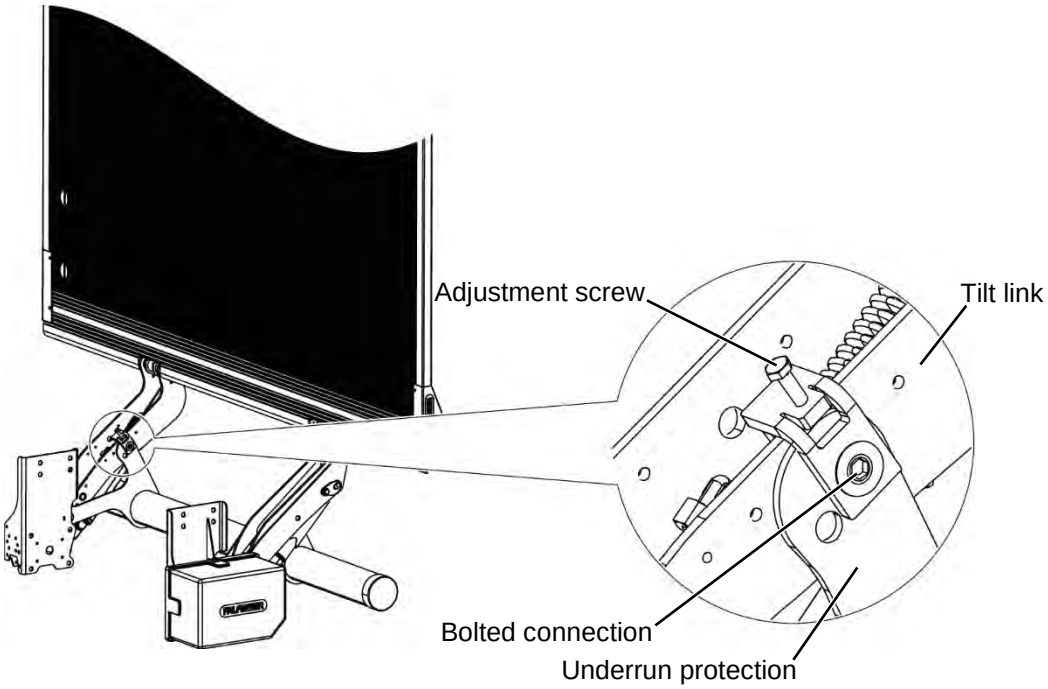


Figure 48: Tilt link, PTC 750

► Tighten the bolted connection between the underrun protection and the tilt link.

► Now check that the platform stops on both sides simultaneously.

► Repeat the steps to align the platform if this is not the case.

10.7. Performing an oil level check

10.7.1. Slide-in unit

To check the oil level:

► Lower the tail lift so that it rests on the ground (see operating instructions).

► Retract existing support feet.

► Open the right cover of the stand tube.

► Loosen the fixing bolt of the hydraulic unit on the stand tube.

► Pull out the hydraulic unit until the oil level in the oil tank is visible (see Figure 49).

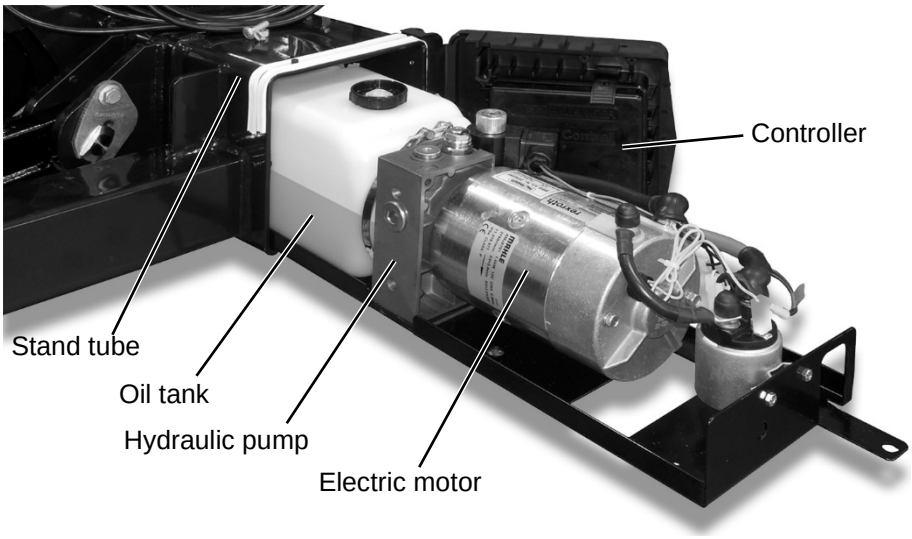


Figure 49: Hydraulic unit

► Check the oil level in the oil tank.

The oil tank should be about ¾ full when the tail lift is in this position.

► Close the platform.

► Fully extend existing support feet.

► Check the oil level in the oil tank again.

There should still be a level of oil in the oil tank when the tail lift is in this position so that the oil pump cannot suck in air when the platform is closed.

► If necessary, top up with hydraulic oil (recommended hydraulic oils: see chapter 10.7.3, page 72).

► Slide the hydraulic unit back into the stand tube

► Fix the hydraulic unit with the fixing bolt.

► Close the right cover of the stand tube.

10.7.2. Box, universal or turning unit

To check the oil level:

► Remove the cover of the unit.

► Proceed as described in the previous chapter for slide-in units.

10.7.3. Recommended hydraulic oils

- Shell Tellus S2 V 15
  Operating temperature: -20 °C to 60 °C
- Aero Shell Fluid 41
  Operating temperature: -54 °C to 90 °C
- Special “cold” configuration:
  Aero Shell Fluid 41 and cryogenic seals against glazing of the sealing materials
  Operating temperature: down to -54 °C

10.8. Lubricating the bearing

► Using a grease gun, press grease into the tapered grease nipples of all bearing points of the hydraulic cylinder bearings and the control rod bearings. Press grease into it until it comes out at the side of the respective bearing point.

A tail lift with two hydraulic cylinders has eight bearing points. A tail lift with four hydraulic cylinders has twelve bearing points.

Recommended grease: Shell Gadus.

10.9. Checking bolted connections

► Take the required tightening torques of the bolted connections from the attachment report (attachment drawing) and the tables on page 31 and page 42.

► Make sure that all bolted connections are secure.

10.10. Checking hoses and cables

► Check that all hoses are free from damage.

► Check that all hoses move freely and are laid so that they cannot be damaged by movements of the tail lift or vehicle.

► Check all cables for external damage.

► Check that all cables are adequately secured and laid so that they cannot be damaged by movements of the tail lift or vehicle.

10.11. Adjusting the pressure relief valve

► Adjust the pressure relief valve so that the tail lift cannot lift more than 125% of its maximum load (see Figure 50).

Note:
For adjustment of the pressure relief valve, observe the chapter “Test by the assembler after assembly" in the control booklet.

► Seal the pressure relief valve.

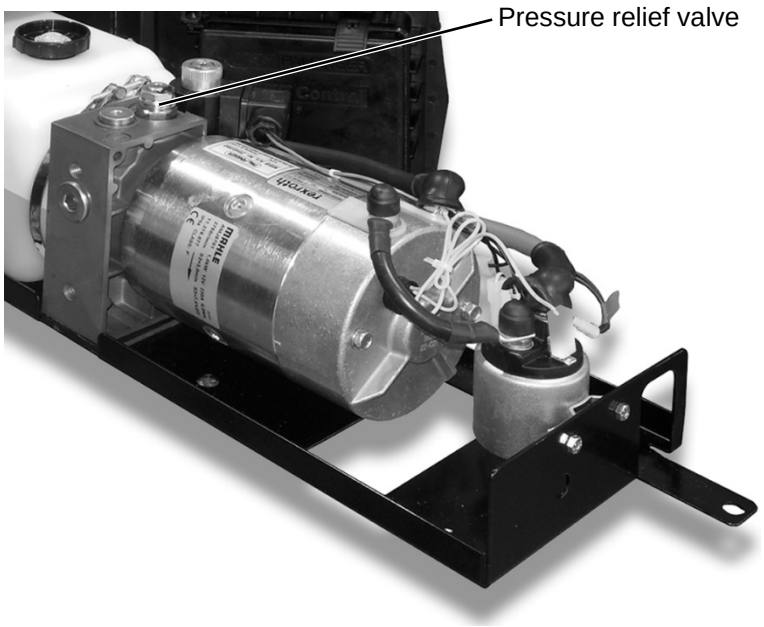


Figure 50: Pressure relief valve on the hydraulic unit

10.12. Adjusting the pressure switch of the hydraulic support (optional)

If the hydraulic support raises the vehicle too high or the props do not reach the ground, adjust the pressure switch of the support.

► For this purpose, turn the grub screw on the pressure switch (see Figure 51).

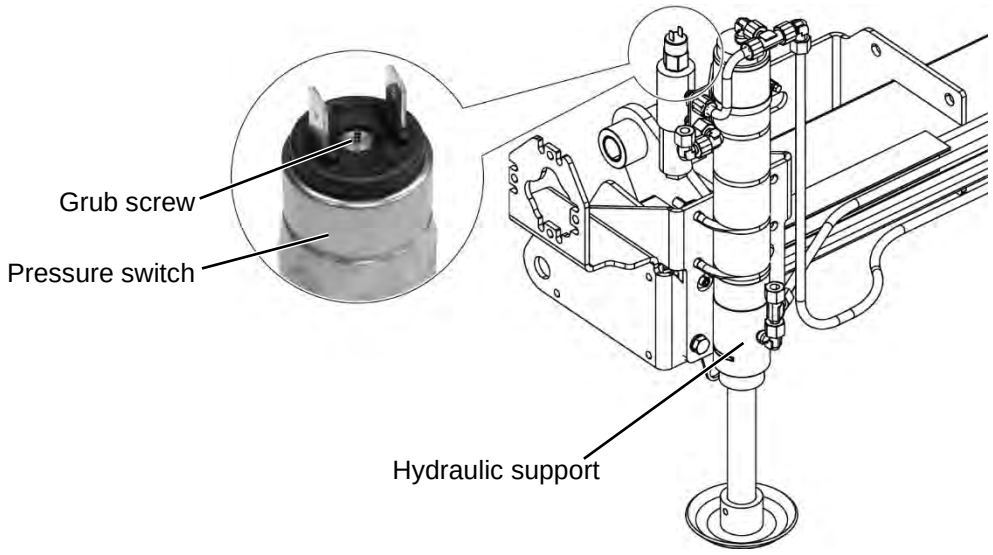


Figure 51: Hydraulic support, pressure switch

► To decrease the contact pressure of the props, turn the grub screw anti-clockwise one rotation.

► To increase the contact pressure of the props, turn the grub screw clockwise one rotation.

► After adjusting the contact pressure, check the adjustment by lowering the props. If the desired shut-off of the support is not provided, repeat the adjustment.

11. Final work

11.1. Attaching warning strips and type plate

The scope of delivery of all **PALFINGER Tail Lifts** tail lifts includes two warning strips. The warning strips are mounted according to the enclosed "Assembly instructions for warning strips" (drawing no. 92-597.99-00.00-00).

► Mount the warning strips according to the enclosed assembly instructions on the **PALFINGER Tail Lifts** tail lift.

► Clean and degrease the designated area for the type plate on the platform, e.g. with silicone remover.

► Glue the supplied type plate to the platform (see Figure 52, page 75).

Figure 52: Type plate

► Glue the test plaque on a prominent place.

11.2. Performing acceptance test as per control booklet

► Perform initial commissioning in accordance with the control booklet.

► Enter the required details in the control booklet:

- Company
- Code
- Installation company
- Details of signatory

► It is essential that you enter the details on the operator and vehicle as well as the form “Confirmation by the installation firm” in the control booklet.

Note:

The control booklet as well as the further documents from the **PALFINGER** document pouch (operating manual, short operating manual, attachment report, certificates) should always be kept in the vehicle.

12. Hydraulic diagrams

12.1. Standard tail lift with four cylinders

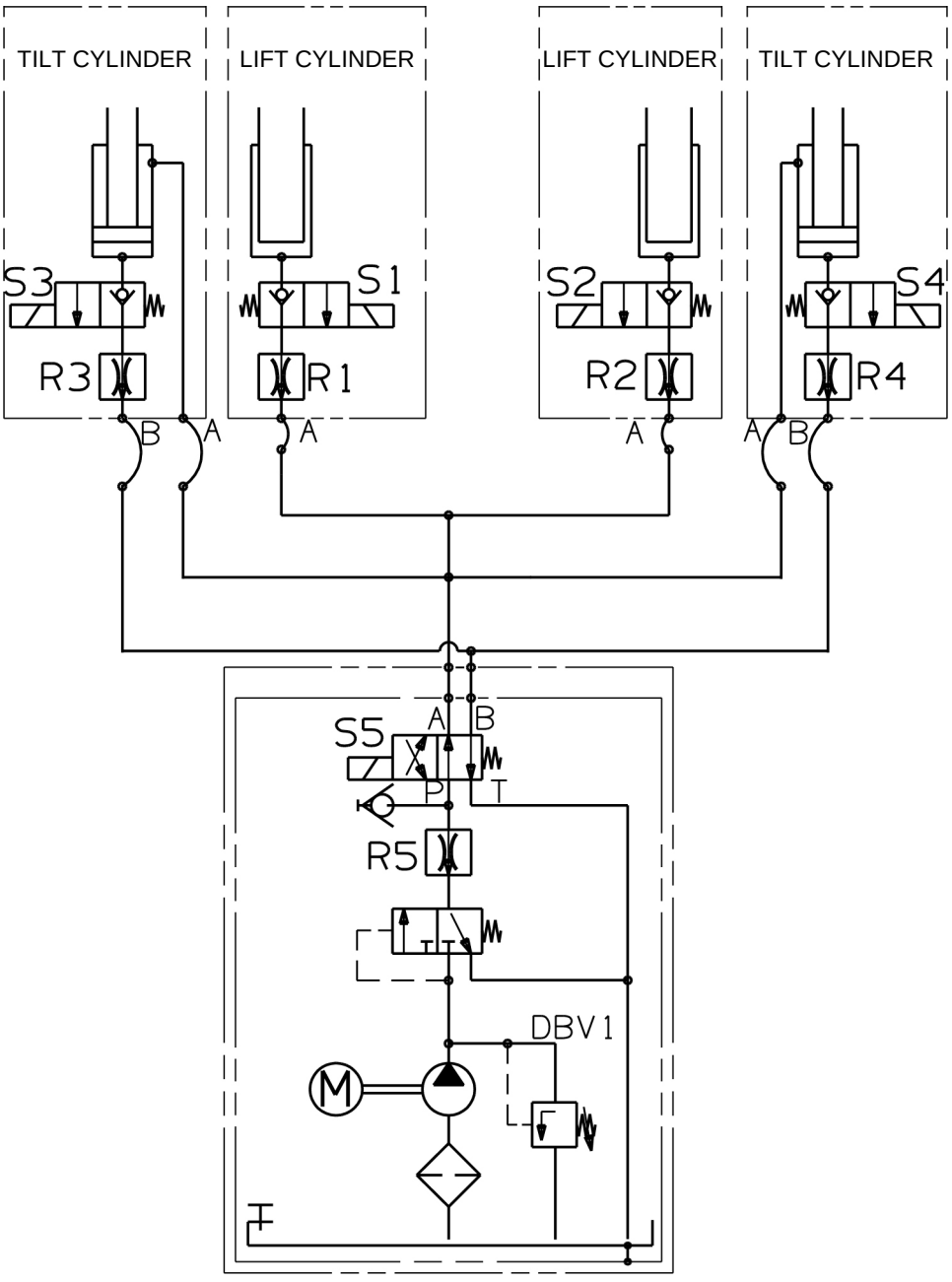


Figure 53: Hydraulic diagram, 96-560.98-00.00-00

12.2. Standard tail lift with soft levelling

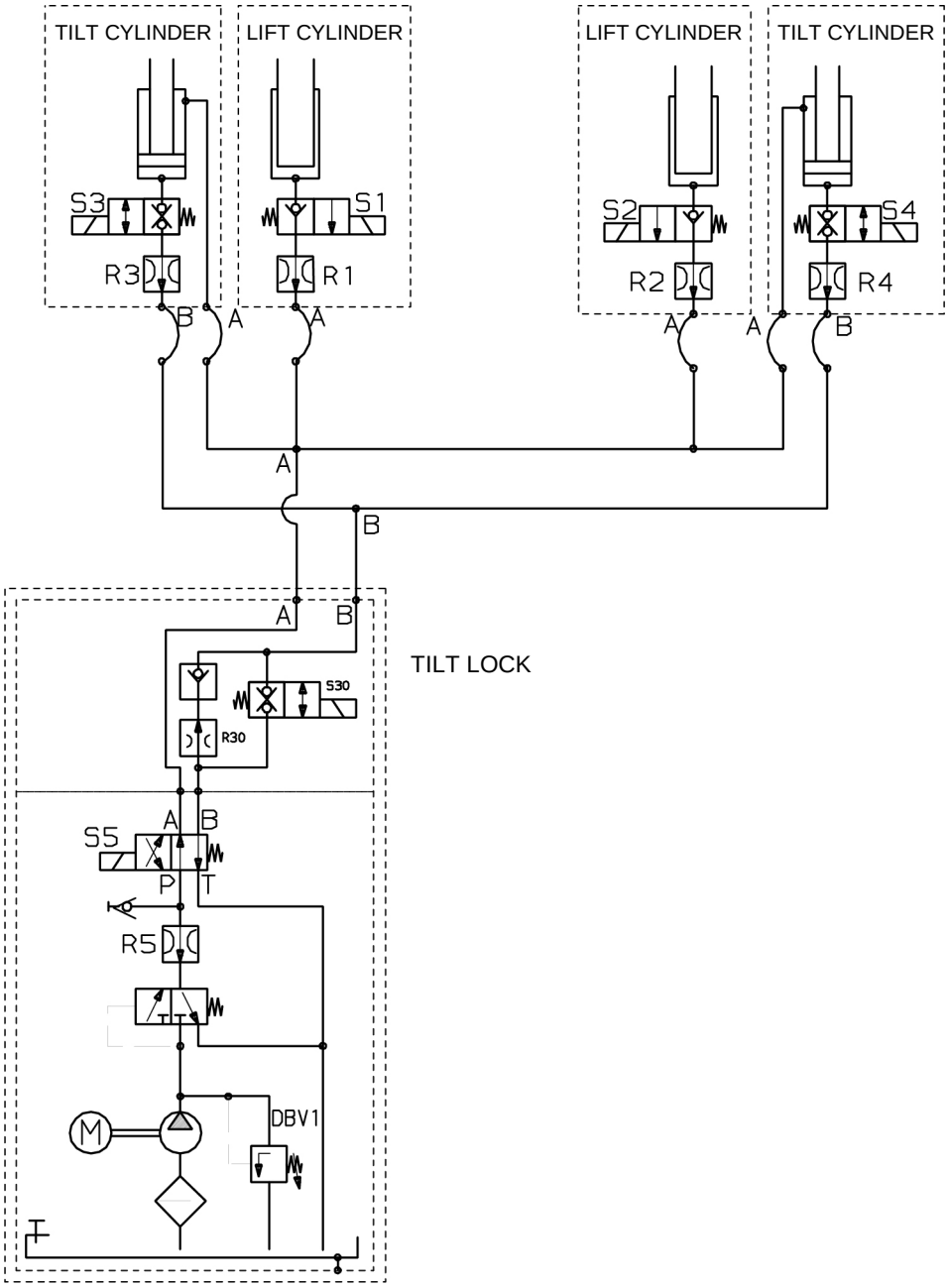


Figure 54: Hydraulic diagram, 18-587.98-01.00-03

12.3. Standard tail lift with two cylinder

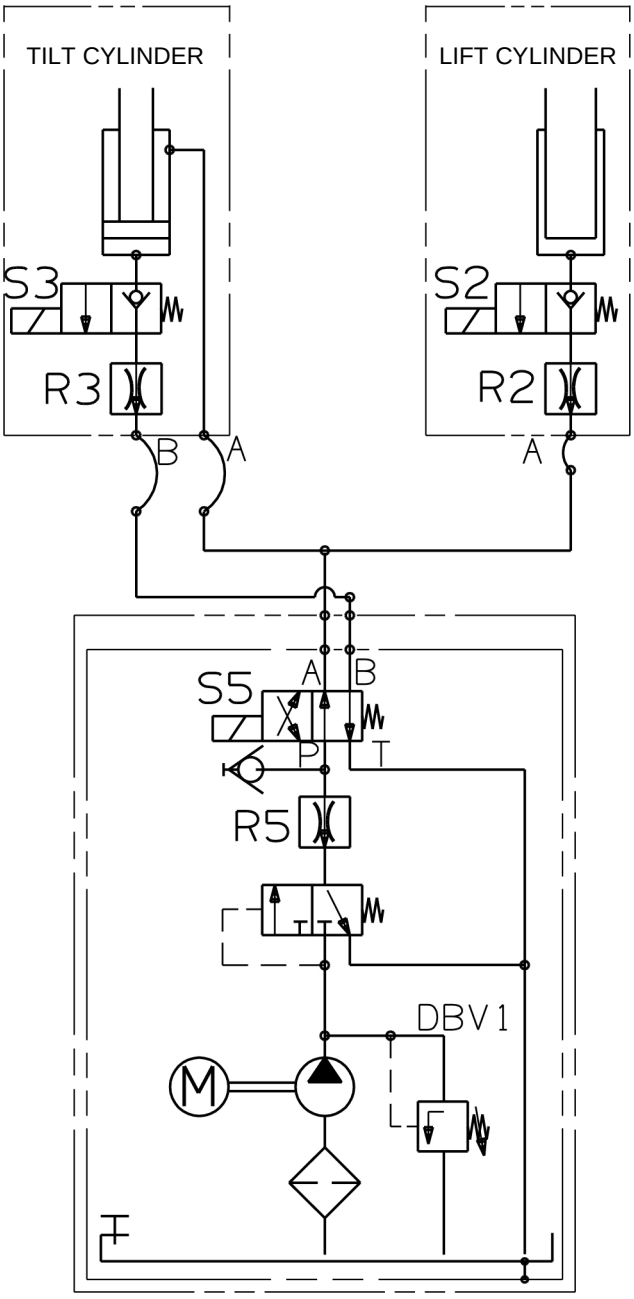


Figure 55: Hydraulic diagram, 97-510.98-00.00-00

12.4. Standard tail lift with hydraulic stabilizer feet

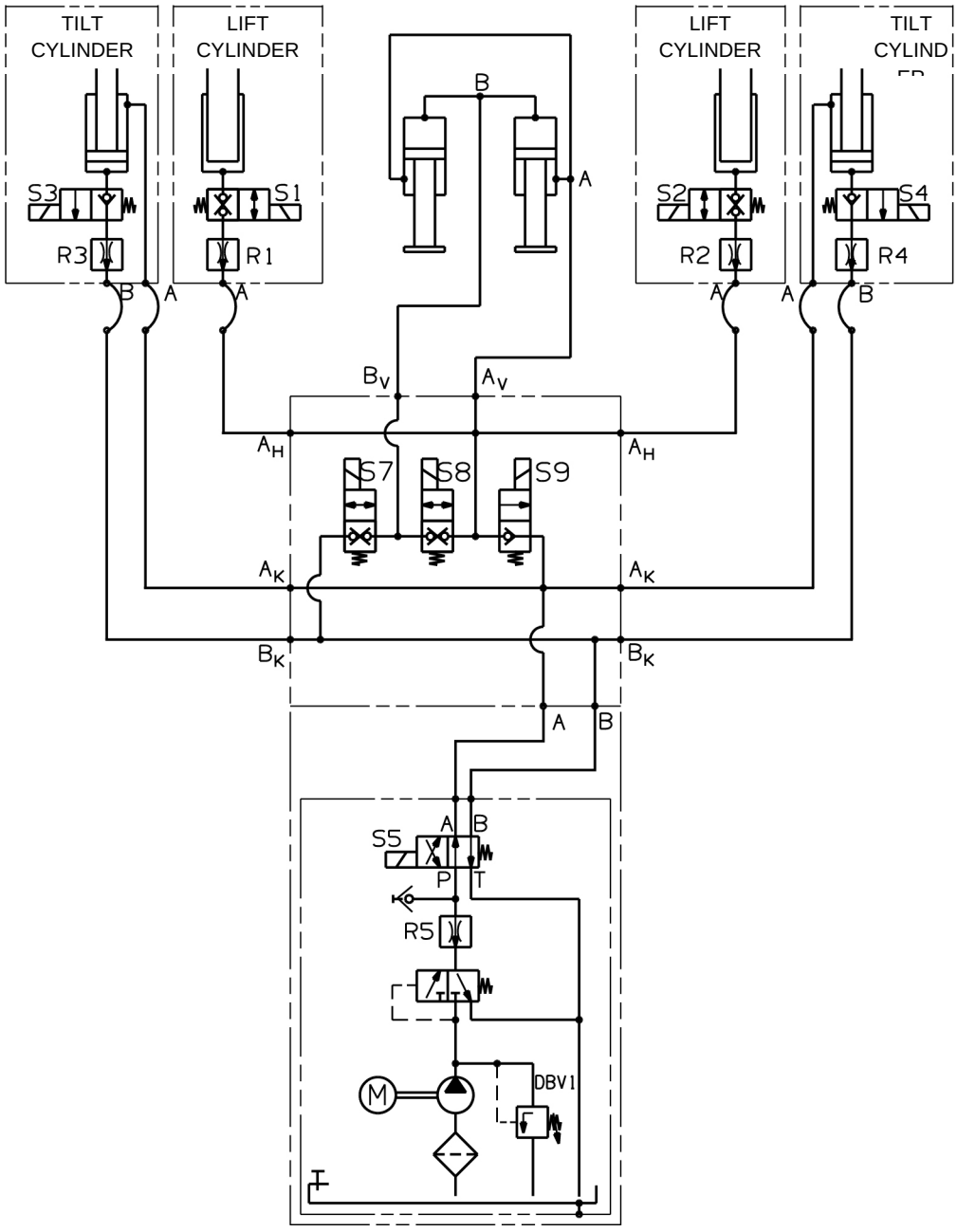


Figure 56: Hydraulic diagram, 96-524.98-01.00-00

12.5. Tail lift with hydraulic stabilizer feet C 750 L

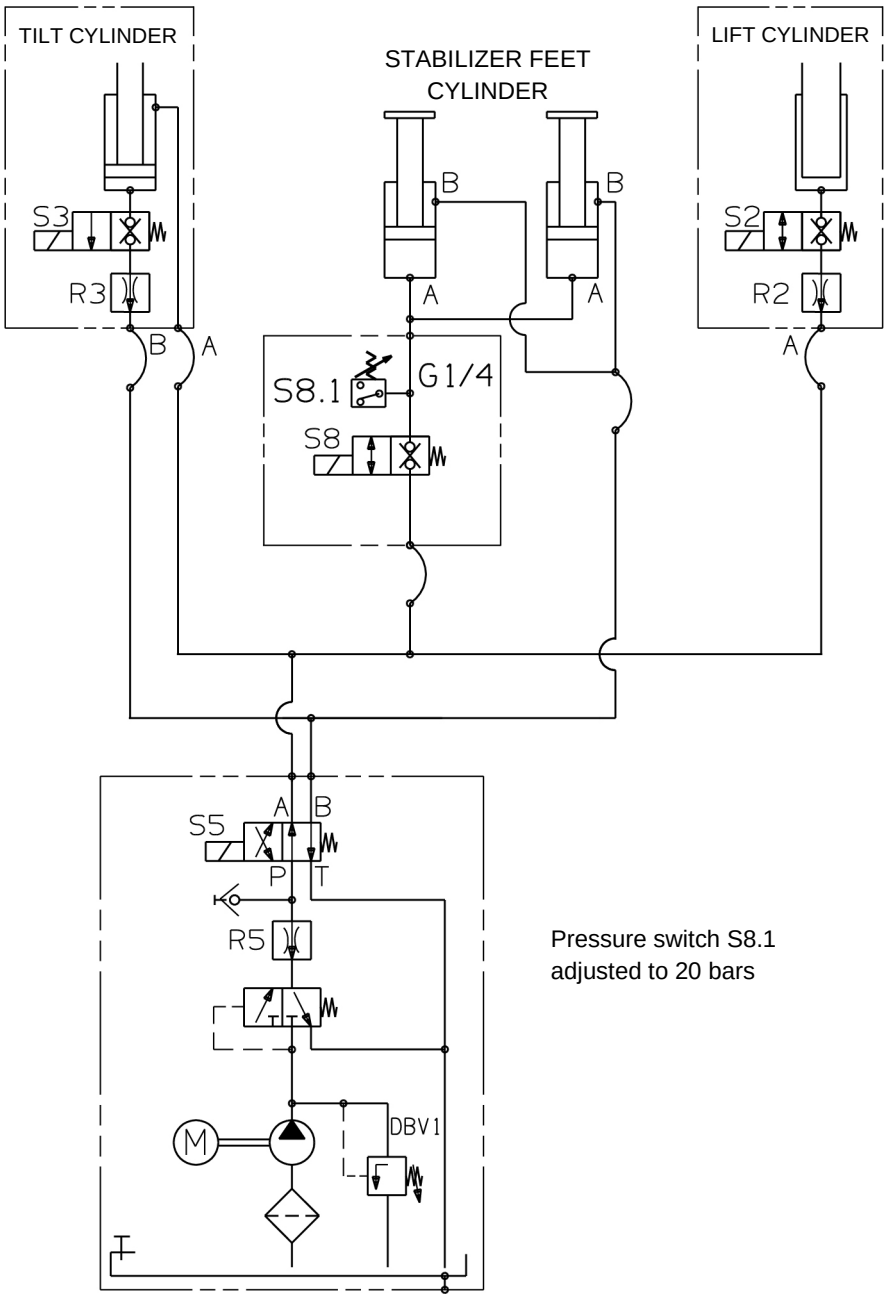


Figure 57: Hydraulic diagram, 12-530.98-01.00-00

12.6. Tail lift with hydraulic stabilizer feet C 750 S

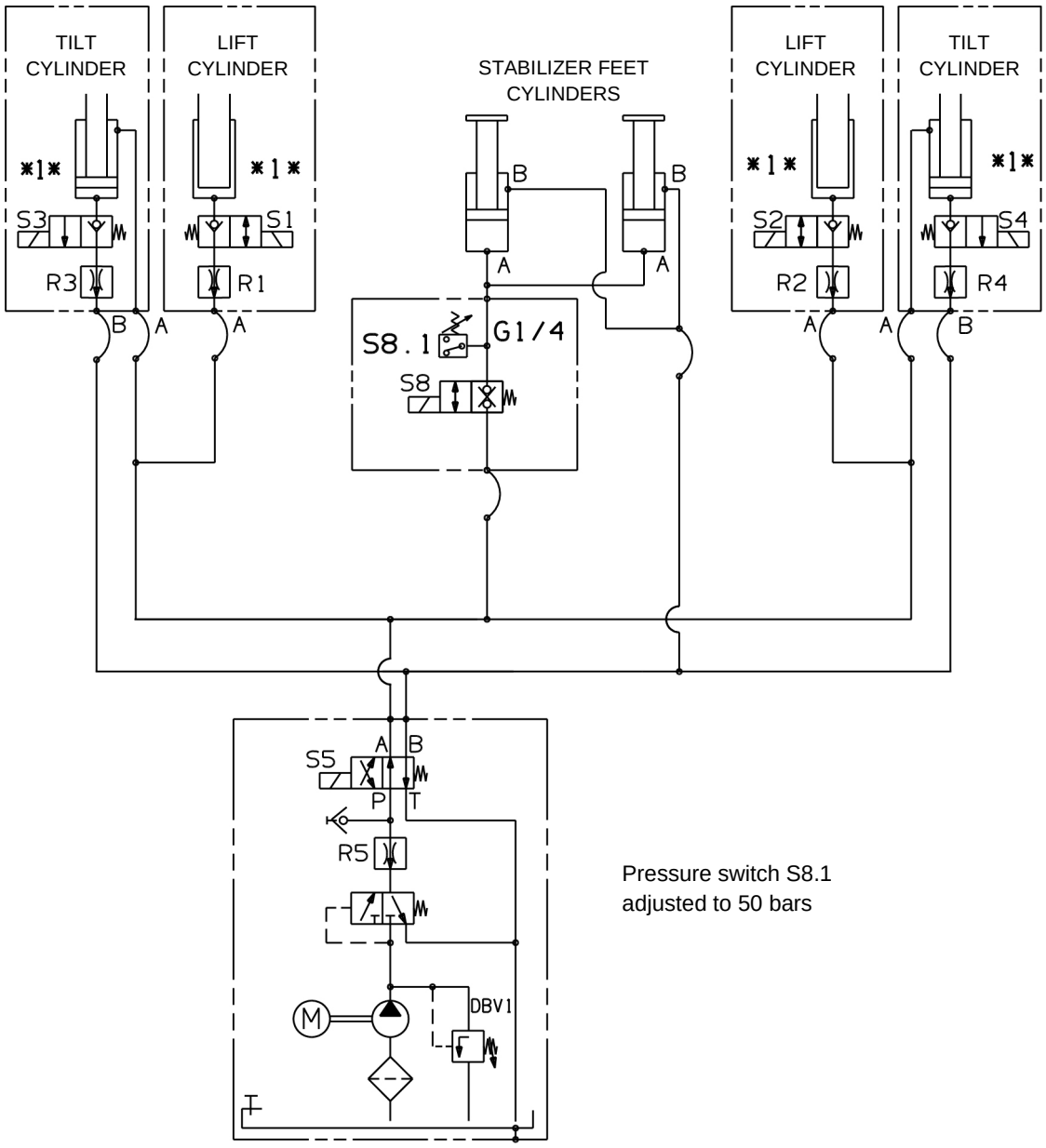


Figure 58: Hydraulic diagram, 08-531.98-01.00-00

12.7. Standard tail lift with hydraulic underrun bumper

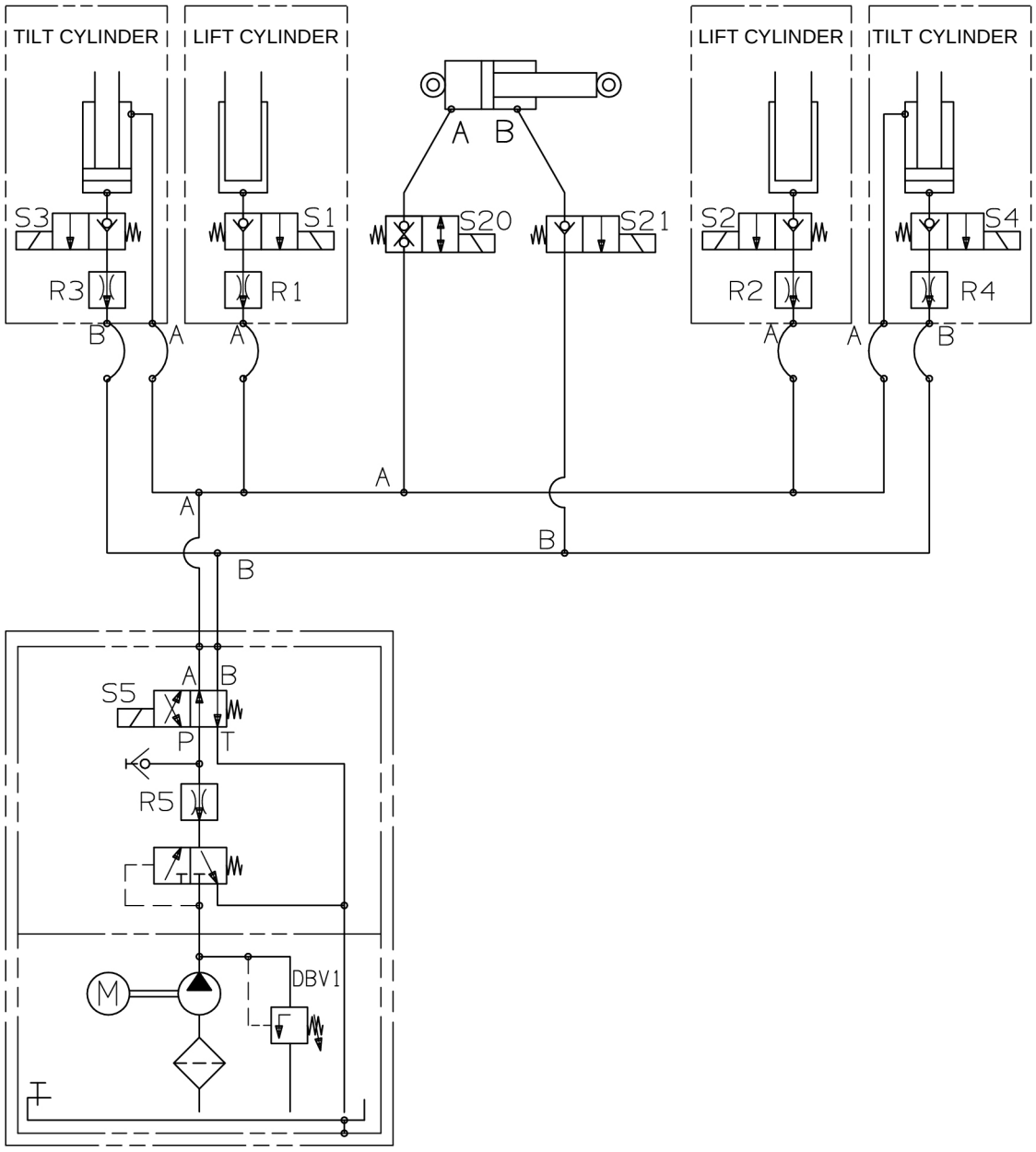


Figure 59: Hydraulic diagram, 99-514.98-01.00-00

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