PALFINGER TAIL LIFTS

OPERATING INSTRUCTIONS

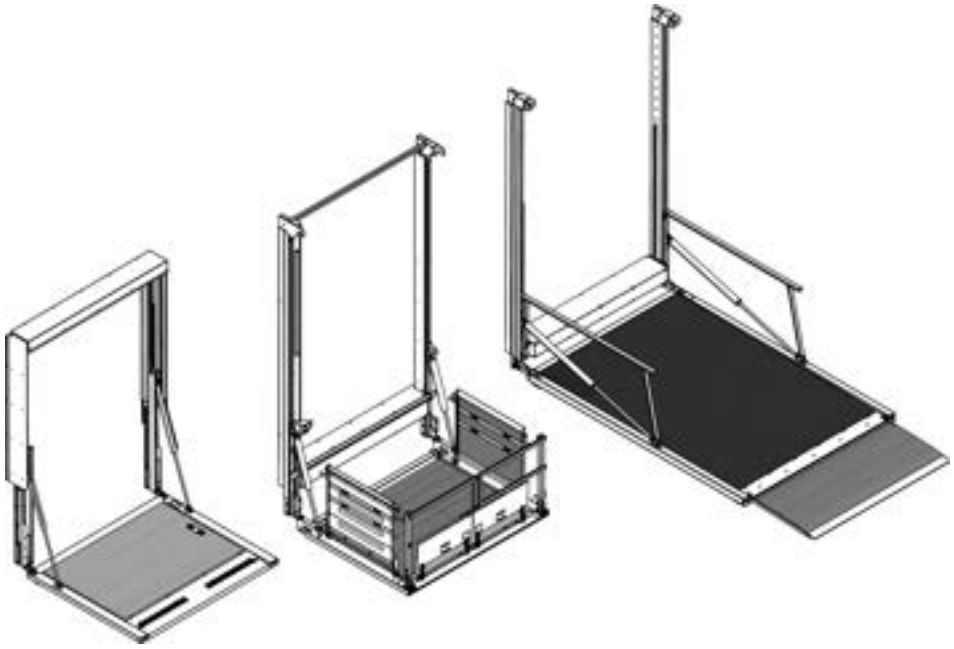
TAIL LIFTS

V 1500 SCL – V 3000 SCL

V 1500 SML – V 2000 SML

V 1750 SGL

LIFETIME EXCELLENCE



Operating Instructions
for
PALFINGER Tail Lifts

V 1500 SCL
V 2000 SCL
V 2500 SCL
V 3000 SCL

V 1500 SML
V 2000 SML

V 1750 SGL

Original instructions

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1. PALFINGER Tail Lifts – the tail lift

Congratulations on the purchase of your new tail lift from **PALFINGER Tail Lifts**!

With more than 50 years of experience with hydraulic tail lifts, **PALFINGER Tail Lifts GmbH** is one of the world's leading manufacturers of these extremely helpful loading systems.

PALFINGER Tail Lifts branded tail lifts and predecessor brands such as Hubfix, Interlift and Hayons Inter are currently in use in more than 40 countries around the world. More than 100,000 tail lifts from the factory near Bremen can be found on five continents.

The unique service network with over 2,500 service centres in Europe alone guarantees unlimited and optimum logistics.

This tail lift was developed by Sykono B. V., a partner company of **PALFINGER Tail Lifts**, in an intensive research and testing program. One of the objectives was to realize a lift that meets the expectations of our customers in terms of ease of use, function, safety, service-life, and ease of maintenance, and that complies with all current EC and UKCA standards and regulations.

In order to familiarize you with your new tail lift, we request that you carefully read through these operating instructions. The necessary safety instructions for operation of the tail lift are provided here.

Should you have any further questions about your tail lift, the service team of **PALFINGER Tail Lifts** is at your disposal.

2. About these instructions

These instructions contain important information to operate and maintain the **PALFINGER Tail Lifts** tail lift in a safe and proper way and to eliminate simple faults yourself.

Some texts in these instructions have a special purpose and are marked as follows:

- Enumeration

  Instruction to do something

The terms 'left' and 'right' used in these instructions refer to the vehicle's direction of travel.

> Before starting to work with the tail lift, read these instructions completely, particularly the chapters "Important safety information" and "Safety instructions for operation".

2.1. Safety instructions in this manual

Safety instructions are provided before a prompt for action in this manual when there is a danger of personal injury or property damage.

Safety instructions are structured as follows:

Signal word!

Description of the type and source of danger

Description of the consequence if the danger is disregarded

Description of the measures for averting the danger

The measures described to avert danger must be complied with!

The signal word indicates the severity of the danger:

Signal word	Use
DANGER!	Indicates an imminent, great danger that will result in severe injury or even death when the danger is not avoided.
WARNING!	Indicates a potential danger that can result in severe injuries or even death when the danger is not avoided.
CAUTION!	Indicates a potentially dangerous situation that can result in moderate or minor bodily injury or property damage when it is not avoided.
Note:	If you do not observe this information, operating the tail lift may be adversely affected.

2.2. Further documentation

- Control booklet
- Type-specific supplementary sheets
- Documentation of your vehicle manufacturer

2.3. Important safety information

The **PALFINGER Tail Lifts** tail lift is manufactured according to state-of-the-art processes and approved safety standards. However, the risk of personal injuries and material damage exists if the following general safety instructions and the warnings prior to the work instructions given in this manual are not obeyed.

Therefore, read these instructions thoroughly and completely before operating the tail lift.

Store the instructions in such a way that all users have access to the instructions at any time.

Always provide these operating instructions if you sell or rent out the vehicle with the tail lift.

In addition to the specific instructions in this operating manual, also observe the general safety and accident prevention regulations.

Familiarize yourself with all systems and controls before commissioning the tail lift. Once you have begun working it is too late!

Prior to starting up the tail lift, always ensure safety with regard to the work to be carried out and the traffic situation.

Wear close-fitting clothing and non-slip safety shoes when operating the tail lift. Avoid loose clothing.

The tail lift may only be operated by one person.

Before driving off, always ensure that the tail lift is engaged in the locking hooks!

Damage must be repaired promptly before the next subsequent use of the tail lift. For this purpose, please contact **PALFINGER Tail Lifts**.

Do not operate the tail lift if there is a defect.

2.4. Proper use

Exclusively use the tail lift for loading and unloading goods.

Observe all capacity limits as stated in the load diagrams (see chapter 11, page 71).

Proper use also means that you have read and understood these instructions, particularly the chapters “Important safety information“ and “Safety instructions for operation”.

WARNING!

Risk of injury if the tail lift is not used as intended!

If you do not use the tail lift as intended, dangerous situations can arise, which can result in injuries and damage to property.

Use the tail lift only as intended.

In particular, refrain from the improper use described below.

Improper use of the tail lift includes the following:

- Use of the tail lift to lift objects other than the load on the platform.
- Use of the tail lift outside the areas of application described in these instructions.
- Use of the tail lift under operation conditions that deviate from the operating conditions described in these instructions.
- Transport of people on the platform.
- Operation of the tail lift despite existing defects.

2.5. Personnel qualifications

The tail lift may only be operated by persons:

- who have read and understood this manual, especially the chapters 'Important safety information” and “Safety instructions for operation”
- and are familiar with the method of operation and handling of the tail lift.

2.6. General instructions

Always keep this manual in the vehicle.

Troubleshooting and rectification of faults should always be carried out at a **PALFINGER** authorized workshop.

You can find your nearest authorized workshop in the location search at www.palfinger.com under "Sales and Service Search".

Only use **PALFINGER Tail Lifts** original parts during maintenance work.

Observe all applicable accident prevention regulations.

2.6.1. Modifications to the tail lift

CAUTION!

It is not permitted to make any structural modifications to the tail lift.

Structural modifications are only allowed with the consent of the manufacturer. Any warranties shall become void if modifications at the tail lift are performed without our consent. The manufacturer shall not be held responsible for damages, accidents, etc. The same applies for the usage of third-party spare parts, if their use has not been explicitly approved.

2.6.2. Before switching on

Before switching on the tail lift, carry out a daily inspection to determine whether all safety and warning devices are present and functional.

- Warning strips
- Warning lights
- Safety railings
- Roll stops

2.6.3. During operation

Ensure that the loading area is sufficiently lit.

Never transport people on the platform.

Always load the platform so that the weight is distributed evenly.

Secure the load on the tail lift so that it cannot fall down.

Roller containers without brakes may only be transported on the tail lift if they have been secured from rolling away.

Keep the area of movement around the vehicle clear.

2.6.4. Before carrying out maintenance

Switch off the main battery switch or disconnect the earth cable.

If hydraulic oil escapes, do not reach into the stream.

Secure the platform against downward movement before carrying out maintenance work under the platform.

2.6.5. During disposal

Dispose of oils and filters according to the regulations in your country.

2.7. Scope of delivery

- Tail lift
- Sticker – ETMA notices
- Large type plate (for the platform)
- Small type plate (for the lifting mechanism)
- Load diagram
- Operating manual
- Type-specific supplementary sheets
- Control booklet
- Starter kit, consisting of:
  - Large company plate (for the platform)
  - Short operating manual
  - Large inspection plate
  - Small inspection plate

3. Description

With the **PALFINGER** tail lifts SCL (Sykono Car Lift, see Figure 1, page 17), SML (Sykono Mobility Lift, see Figure 3, page 19) and SGL (Sykono Goods Lift, see Figure 5, page 21), goods can be loaded into a truck or trailer via a platform. The platform can be raised and lowered. The platform is suspended on two runners that run in guide frames and are lifted using steel ropes. Two hydraulic cylinders, also suspended on the runners, open and close the platform.

The SCL and SGL models are particularly suitable for vehicles with two loading decks. The SCL models with their long platform are ideal for transporting cars and sports cars. The platform of the SGL models is shorter and can be raised particularly high. This makes the vehicle accessible through the doors on the vehicle which are located below the fully raised platform. On the SML models, the platform can be lowered particularly far down. That's why SML models are especially suitable for mounting in swap body containers.

A transverse hydraulic cylinder with a block and tackle construction tensions the steel ropes that raise and lower the platform. On the SCL and SGL models, the hydraulic cylinder is located below the lower loading deck (see Figure 2, page 18, and Figure 5, page 21). On the SML models, the hydraulic cylinder is located below the roof of the carrier vehicle (see Figure 3, page 19, and Figure 4, page 20). From the block and tackle construction on the hydraulic cylinder, the steel ropes are guided to the runners via rope pulleys.

A hydraulic unit drives the hydraulic cylinders to raise/lower and open/close the platform (see chapter 3.3, page 21). The hydraulic unit can be mounted at different positions on the carrier vehicle or on the swap body container on which the tail lift is mounted. The control unit of the tail lift is located close to the hydraulic unit.

Depending on the equipment, there are safety railings on the platform (see Figure 1, page 17, Figure 5, page 21 and chapter 5.7, page 41). In addition, depending on the equipment, the platform is equipped with a loading ramp that can be folded down or pushed in.

During the journey, the platform closes the load compartment of the carrier vehicle. The platform is in the vertical, fully raised position and is secured in two locking hooks. A solenoid valve on the hydraulic cylinder prevents the platform from lowering.

Depending on the equipment, there are various operating elements on the side of the vehicle and on the platform for operating the tail lift. A hand cable control and a radio remote control are also available (see chapter 3.6, page 24).

3.1. Tail lift SCL

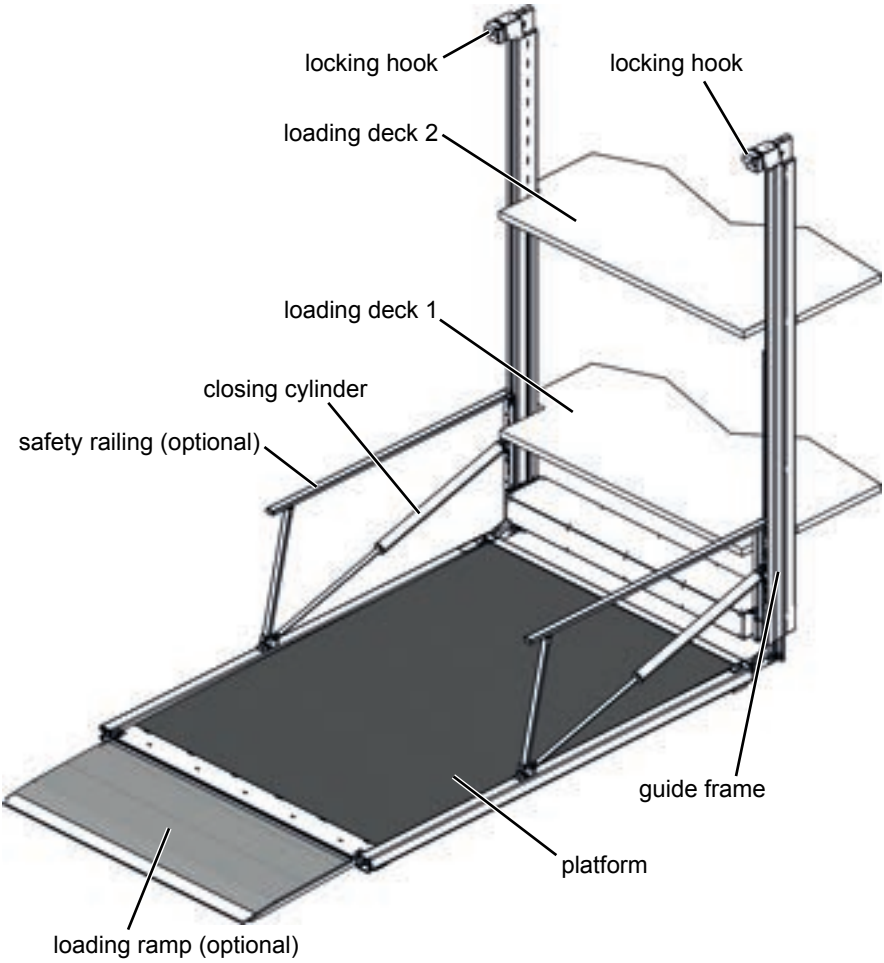


Figure 1: Tail lift SCL, overview

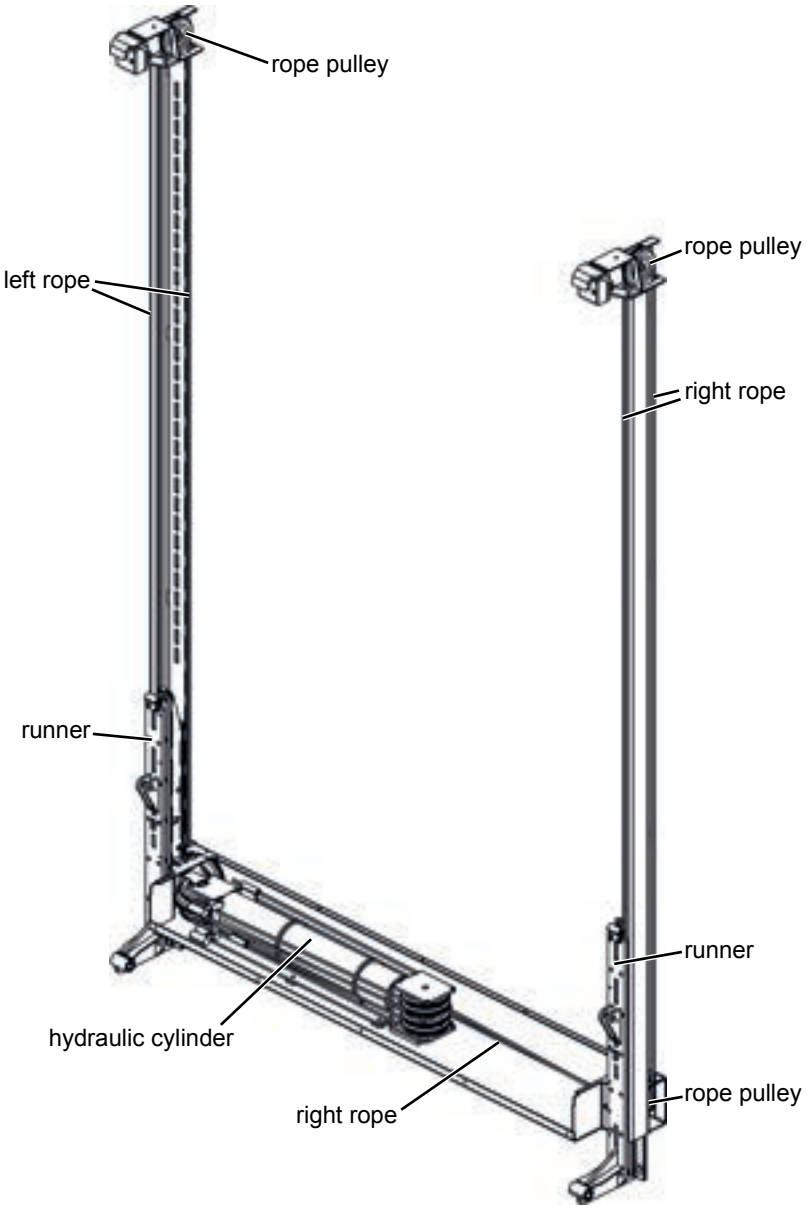


Figure 2: Tail lift SCL, rope guidance

3.2. Tail lift SML

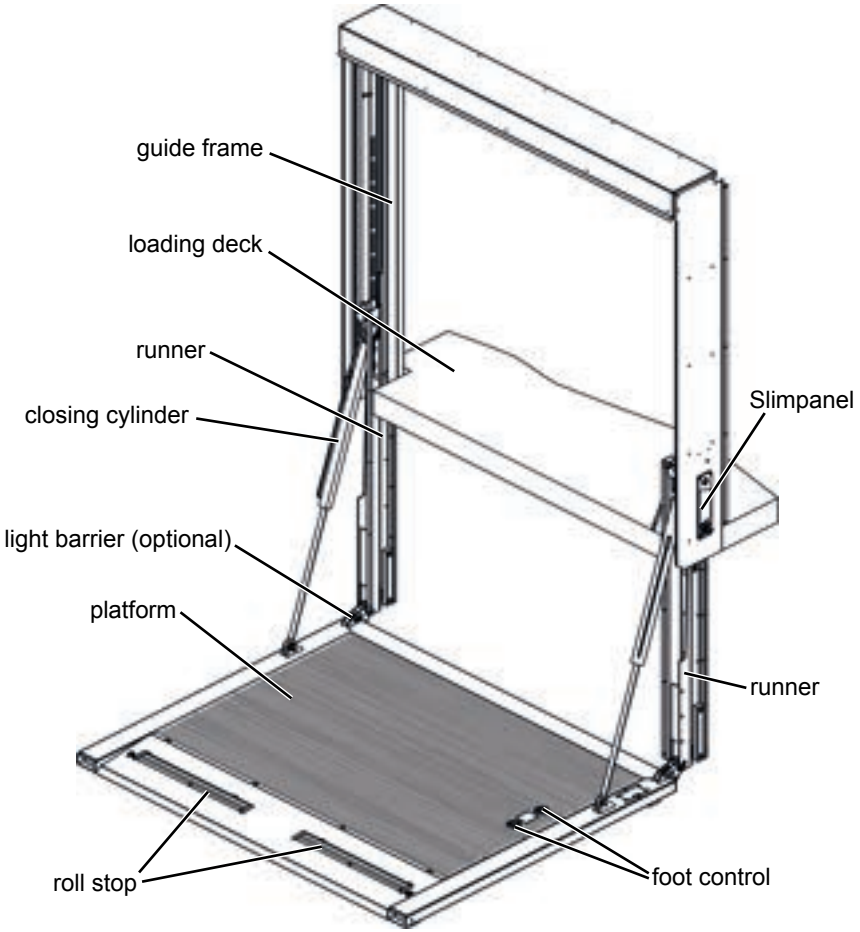


Figure 3: Tail lift SML, overview

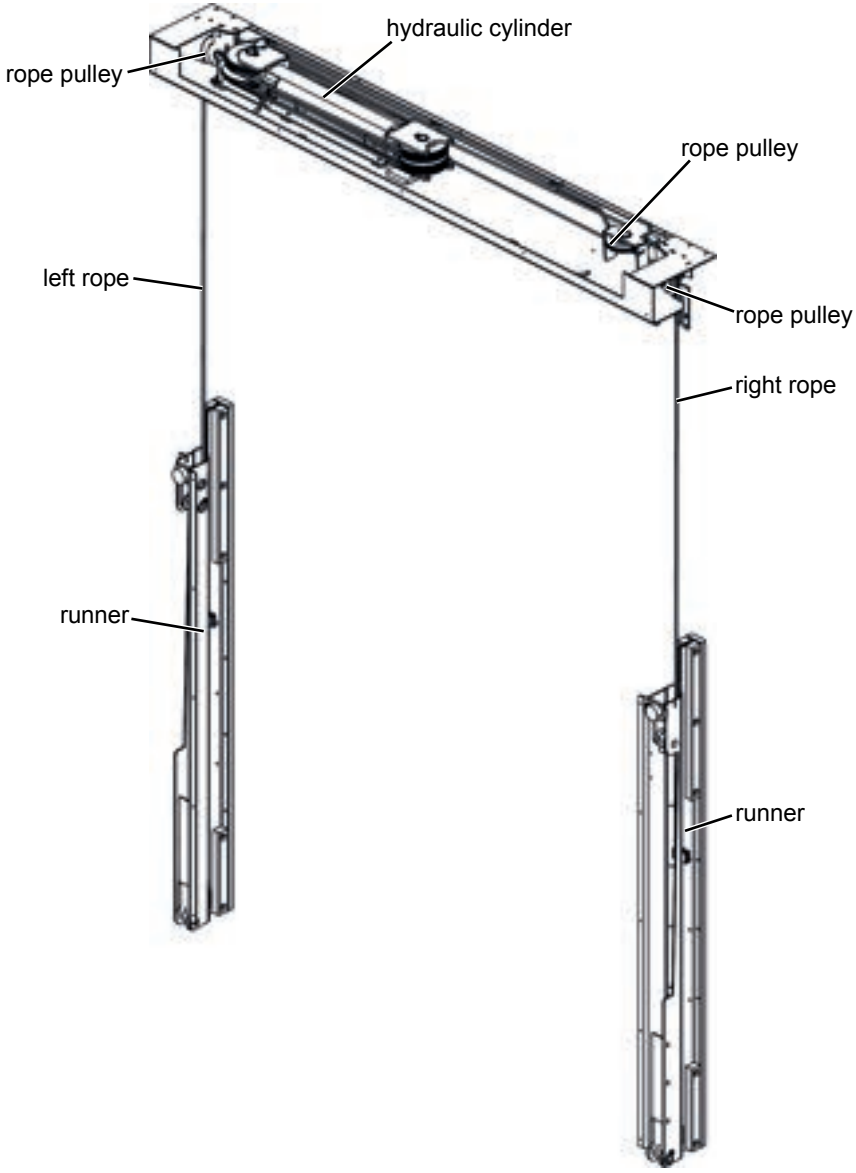


Figure 4: Tail lift SML, rope guidance

3.3. Tail lift SGL

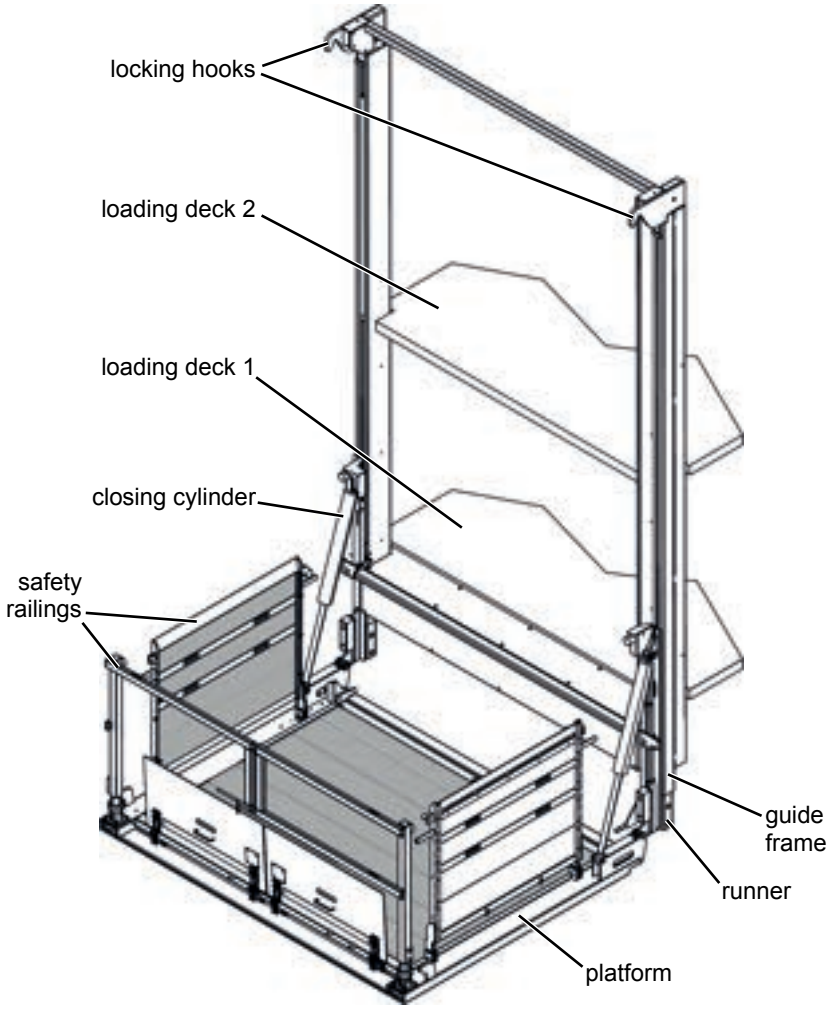


Figure 5: Tail lift SGL, overview

Note:

The rope guidance on the tail lifts SGL is similar to the rope guidance on the tail lifts SCL.

3.4. Hydraulic unit

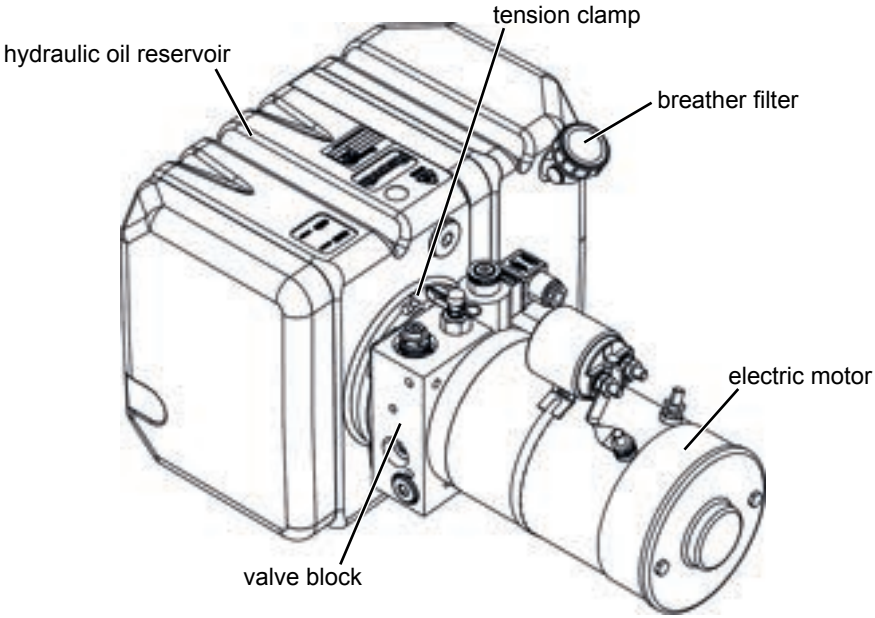


Figure 6: Hydraulic unit (standard version)

3.5. Control unit

Figure 7: Control unit (example picture)

3.6. Operating elements

3.6.1. Slimpanel

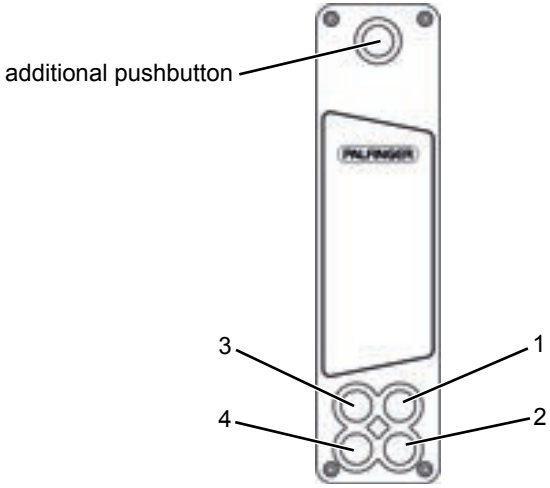
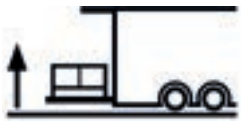
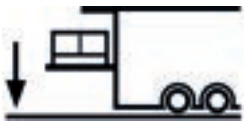


Figure 8: Slimpanel

	**Opening the platform** Press and hold the additional pushbutton and push-button **4** until the platform has reached the horizontal position.
	**Lifting the platform** Press and hold the additional pushbutton and push-button **1** until the platform has reached the desired height.
	**Lowering the platform** Press and hold the additional pushbutton and push-button **2** until the platform has reached the desired height.
	**Closing the platform** Press and hold the additional pushbutton and push-button **3** until the platform is completely closed.

3.6.2. Control panel

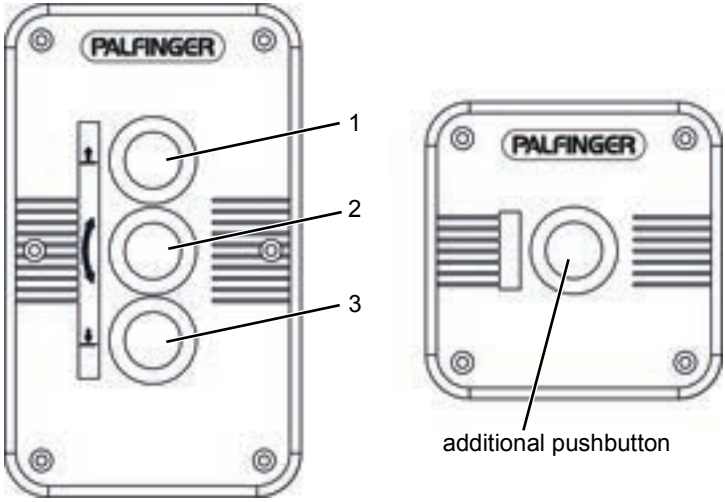
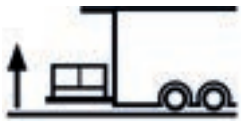
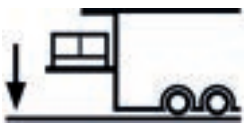
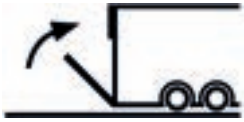


Figure 9: Control panel

	**Opening the platform** Press and hold pushbutton **2** and **3** and the additional pushbutton until the platform has reached the horizontal position.
	**Lifting the platform** Press and hold pushbutton **1** and the additional pushbutton until the platform has reached the desired height.
	**Lowering the platform** Press and hold pushbutton **3** and the additional pushbutton until the platform has reached the desired height.
	**Closing the platform** Press and hold pushbutton **1** and **2** and the additional pushbutton until the platform is completely closed.

3.6.3. Control unit at the platform

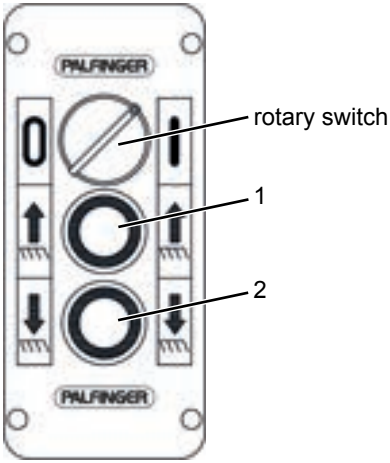
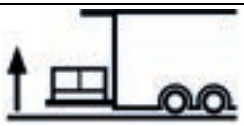
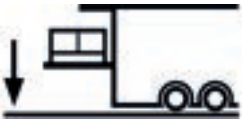


Figure 10: Control unit at the platform

	Rotary switch Turn the rotary switch to position **I** to switch on the functions of this control unit. Turn the rotary switch to position **0** to switch off the functions of this operating unit.
	**Lifting the platform** Press and hold pushbutton **1** until the platform has reached the desired height.
	**Lowering the platform** Press and hold pushbutton **2** until the platform has reached the desired height.

3.6.4. Hand cable control

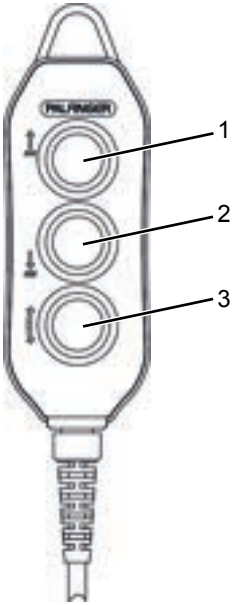
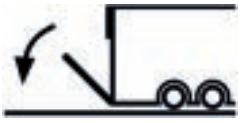
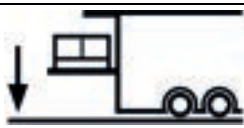
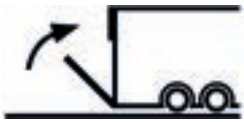


Figure 11: Hand cable control

	**Opening the platform** Press and hold pushbutton **2** and pushbutton **3** until the platform has reached the horizontal position.
	**Lifting the platform** Press and hold pushbutton **1** until the platform has reached the desired height.
	**Lowering the platform** Press and hold pushbutton **2** until the platform has reached the desired height.
	**Closing the platform** Press and hold pushbutton **1** and pushbutton **3** until the platform is completely closed.

3.6.5. Radio remote control

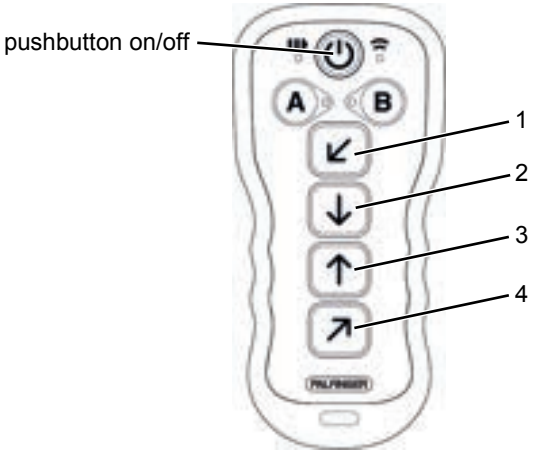
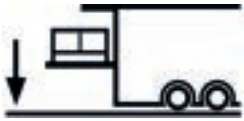
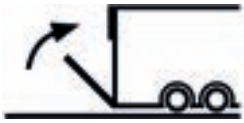


Figure 12: Remote Control BT

	**Opening the platform** Press and hold pushbutton **1** until the platform has reached the horizontal position.
	**Lifting the platform** Press and hold pushbutton **3** until the platform has reached the desired height.
	**Lowering the platform** Press and hold pushbutton **2** until the platform has reached the desired height.
	**Closing the platform** Press and hold pushbutton **4** until the platform is completely closed.

Note:

Observe the operating instructions enclosed with the radio remote control.

3.6.6. Toggle switch

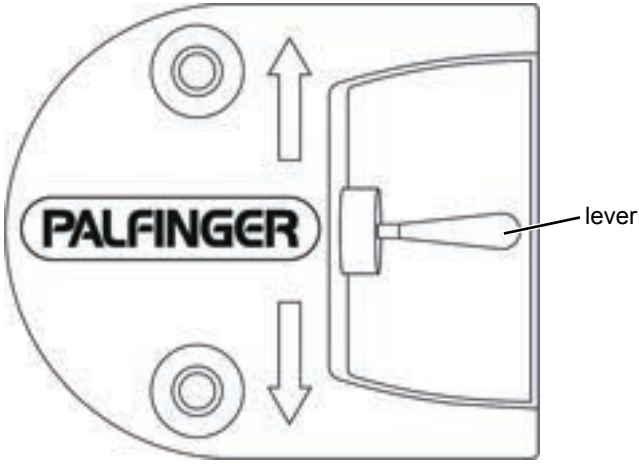
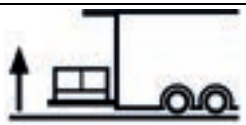
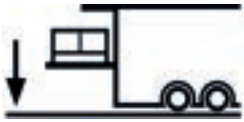


Figure 13: Toggle switch

	**Lifting the platform** Press the lever of the toggle switch upwards until the platform has reached the desired height.
	**Lowering the platform** Press the lever of the toggle switch downwards until the platform has reached the desired height.

3.6.7. Foot control

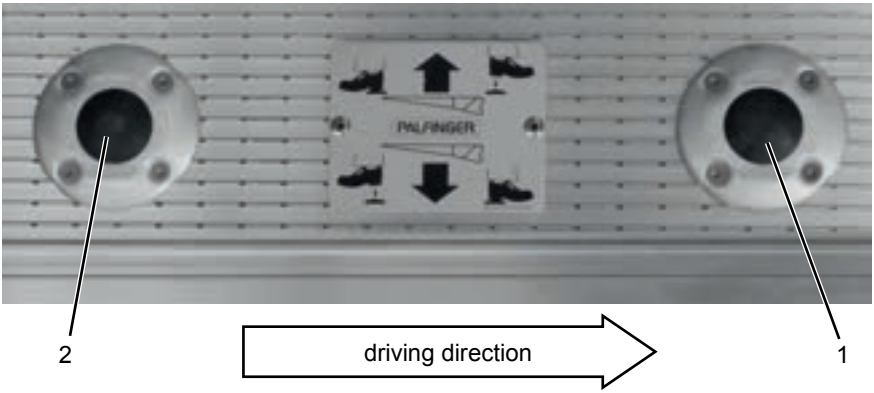
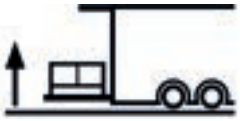
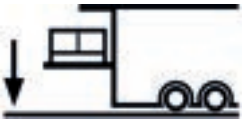


Figure 14: Foot control on the platform

	**Lifting the platform** Step on the foot control **2** and keep it in this position. After one second at the earliest and three seconds at the latest, step on the foot control **1** and keep it in this position.
	**Lowering the platform** Step on the foot control **1** and keep it in this position. After one second at the earliest and three seconds at the latest, step on the foot control **2** and keep it in this position.

3.7. Technical data

3.7.1. Recommended battery capacity

Load weight [kg]	Recommended battery capacity
up to 1250	12 V: 1 x 143 Ah 24/12 V, 24 V: 2 x 12 V, 2 x 105 Ah
over 1250 to 1750	12 V: 1 x 180 Ah 24/12 V, 24 V: 2 x 12 V, 2 x 143 Ah
over 1750 to 4000	24/12 V, 24 V: 2 x 12 V, 2 x 180 Ah

3.7.2. Alternators for recharging the battery

Load weight [kg]	Recommended alternator [Watt]
up to 1250	630
over 1250 to 1750	730
over 1750 to 3000	1000

3.7.3. Temperature range for tail lift usage

-20°C to +60°C

4. Safety symbols

As protection against injuries, various stickers with safety and warning notices are affixed to your tail lift (see Figure 15). In the process, residual risks that can arise during operation of the tail lift despite its safe design are identified.

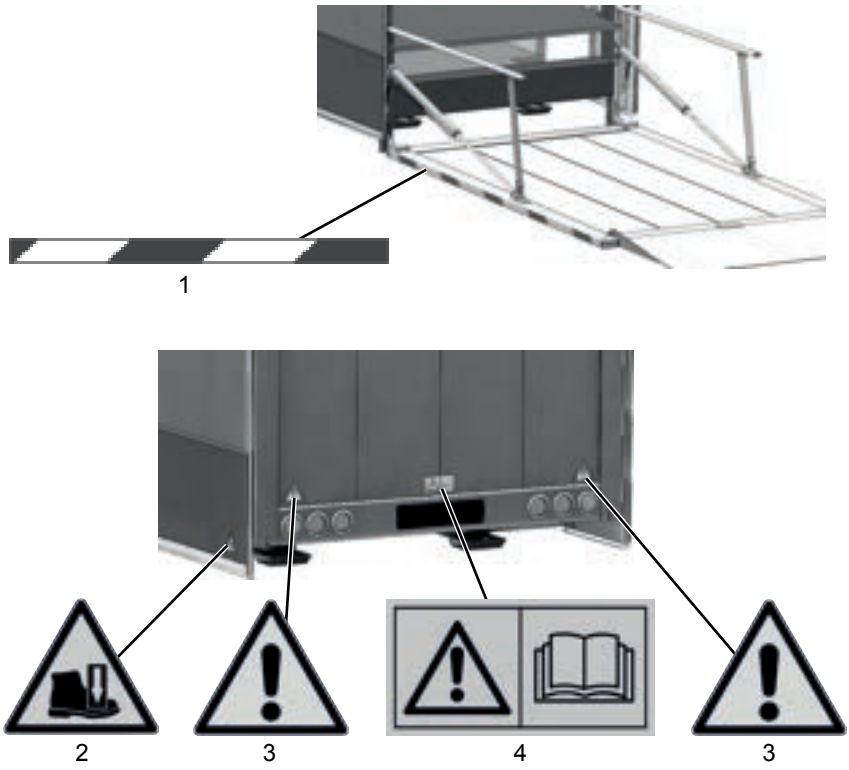


Figure 15: Safety symbols

Nr.	Safety symbol	Meaning
1		Contour marking on the side edges of the platform

Nr.	Safety symbol	Meaning
2		Danger of entrapment of the feet between the rear side of the vehicle and the tail lift system. Danger of entrapment of the feet between loading platform and the ground.
3		General warning notice.
4		Before use, carefully read through the manual.

CAUTION!

Risk of injury due to missing safety symbols!

If safety symbols are missing or unrecognizable, dangers cannot be recognized and avoided in time. Dangers of injury arise.

- Check daily whether all safety symbols are present.
- Take the tail lift out of operation if safety symbols are missing or have become illegible.
- Replace missing safety symbols or safety symbols that have become unrecognizable without delay.

5. Operation

5.1. Safety instructions for operation

WARNING!

Risk of serious injury and risk of material damage due to improper use of the tail lift.!

Only work with the tail lift when all safety equipment is complete and functional.

Switch off the tail lift when it is not in use.

WARNING!

Risk of injury or material damage due to insufficient safety measures!

Personnel can be injured and material damage can occur at your vehicle, the tail lift, or other vehicles if you do not observe the following:

Prior to starting work, be sure that all safety and warning devices are present and operational.

Only stop in places where the traffic regulations permit a stop.

Secure the vehicle against rolling away, for example by using the parking brake, engaging a gear, or wheel chocks.

Secure the traffic area with warning flags and warning lights before loading or unloading the vehicle. Pay special attention to secure the operating elements of the tail lift that stick out into the moving traffic.

WARNING!

Danger to life and danger of severe poisoning due to exhaust gases!

If the vehicle on which the tail lift is mounted is located in a closed room, there is a danger of inhaling exhaust gases when the engine is running.

The vehicle on which the tail lift is mounted must never be used or tested in a closed room.

DANGER!

Risk of injury and material damage when moving the platform!

Personnel can be injured when moving the platform. Vehicles and other object in the maneuvering area can be damaged. Load items can fall down and be damaged or injure persons.

Make sure that sufficient space is available behind the vehicle for the tail lift.

Keep other persons away from the maneuvering area while moving the platform.

Watch the payload, the maneuvering area, and the squeeze area to the vehicle while moving the platform.

DANGER!

Crushing hazard due to wrong operator position!

If the operator does not stand in the correct position when moving the platform via the hand cable control or the remote control, personal injury and material damage may occur.

- Make sure to stand in the correct position (see Figure 16, page 37) when operating the platform with the hand cable control. Do not stand in another position.
- When operating the platform with the hand cable control or the remote control while standing inside the vehicle, always keep a minimum distance of 250 mm from the sill.
- Do not stand in the area near the platform edge where you risk to crush your feet when the platform approaches the vehicle body.
- When standing on the ground for operating the platform, keep a minimum distance of 1 m from all platform rims.
- Make sure that you can see the entire working area and that no other person stays on or near the platform.

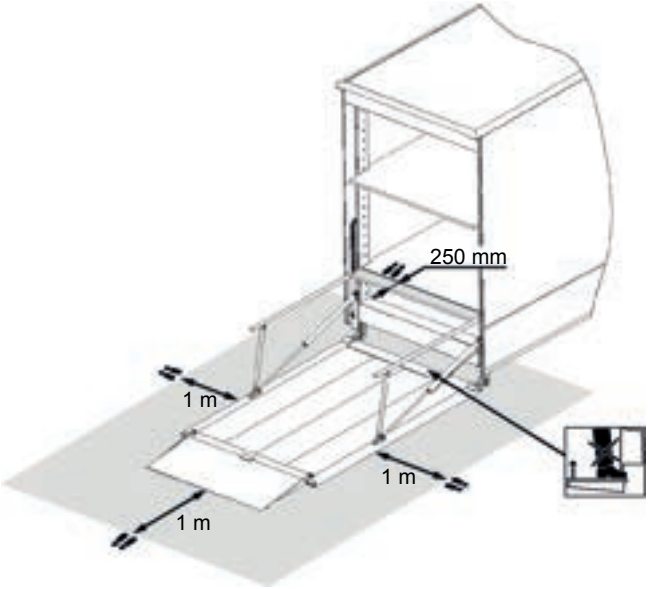


Figure 16: Operator positions

5.2. Switching on the tail lift

If there is a hand cable control:

Plug the cable of the hand cable control into the corresponding socket.

The socket is located close to the control unit.

Depending on the equipment there are different ways to switch on the tail lift:

- Switch in driver's cab
- Key control at lateral operating control panel or Slimpanel
- Pushbutton code entered at Slimpanel
- Battery main switch
- Switch the tail lift on. Observe the documentation of your vehicle manufacturer to do that.

5.3. Opening the platform

Note:
In the case of a tail lift mounted in a swap body container:

Retract the underride guard of the vehicle (see operating instructions of the vehicle).

Only then open the platform and lower it.

Open the platform (see chapter “Operating elements”, page 23.)

The platform lowers a little to release from the locking hooks and then opens to the horizontal position.

Lower the platform to the desired height (see chapter “Operating elements”, page 23.)

5.4. Loading and unloading the platform

CAUTION!

Damage to the tail lift by incorrect loading!

The tail lift can be damaged if the platform load is too high or unbalanced.

When loading the platform, do not exceed the maximum load weight specified in the corresponding load diagram (see chapter 11, page 71). Take the weight of the operator standing on the platform into account. The load diagram is also shown at the lateral operating element.

Center the load on the platform. The payload center of gravity should be as close to the vehicle as possible. If you load the platform on one side only, the payload weight may be max. 50 % of the permitted payload.

Rolling containers without brakes may only be loaded if the tail lift is equipped with a roll-off protection (roll stops or grooves). Rolling containers without brakes must always be secured by this roll-off protection.

Never drive a forklift truck onto the platform.

CAUTION!

Risk of personal injury and material damage by lack of stabilisation!

If the vehicle is not stabilized, there is a risk that the platform tilt is misadjusted by impermissible load of the axles and compression of the air or leaf spring of the vehicle. As a result, the load may start to move uncontrolled. This can result in personal injuries or the platform could be severely damaged.

Make sure, that the load of the vehicle front axle does not fall below the minimum load.

Make sure, that the maximum load of the vehicle rear axle does not exceed the maximum load.

CAUTION!

Risk of injury because of insufficient holding or too little space on the platform!

Persons can fall off the platform and suffer from injuries.

When loading the platform, leave enough free space for the operator (minimum 50 x 60 cm).

Only one person – the operator – is allowed to travel on the platform at any time.

Never hold the payload but hold on to the railing yourself!

Fold out or pull out a given loading ramp (see Figure 1, page 17)

Put up given safety railings (see chapter 5.7, page 41).

Roll or lift the payload onto the platform.

Secure any rolling containers on the tail lift by installed brake devices or roll-off protections (see chapter 5.8, page 44).

Raise or lower the platform to the desired height.

Release given braking devices on the payload and fold down given roll-off protections.

Roll or lift the payload off the platform

5.5. Closing the platform

Lay down given safety railings (see chapter 5.8, page 44).

Fold an existing loading ramp onto the platform or slide it in (see Figure 1, page 17).

Close the platform (see chapter “Operating elements”, page 23.)

The platform closes a little, moves to a height where it can close completely, closes completely and then moves upwards until it is secured in the locking hooks.

Note:

This automatic operation can be carried out from any given height of the platform.

5.6. Switching off the tail lift

DANGER!

Risk of injury or material damage due to unlocked tail lift!

Persons can be injured or vehicles and objects in public road traffic can be damaged if the tail lift folds out accidentally during driving and sticks out into the moving traffic.

Ensure that the platform is completely closed, raised, and secured in the locking hooks.

Only then start the ride.

Depending on the equipment there are different ways to switch off the tail lift:

- Switch in driver's cab
- Key control at lateral operating element or Slimpanel
- Pushbutton code entered at Slimpanel
- Battery main switch

Before starting a ride:

Close the platform (see chapter 5.5, page 40).

Switch the tail lift off. Observe the documentation of your vehicle manufacturer to do that.

If there is a hand cable control:

Disconnect the cable of the hand cable control from the socket.

Stow the hand cable control in the designated place.

5.7. Putting up or laying down the safety railings at the platform

Depending on the model, the platform of your tail lift is protected by safety railings. There are two basic types of safety railings:

- P-shaped safety railing
- A-shaped safety railing

Note:

For operation of other railing types: see supplementary sheet.

In order to put up or lay down the safety railings at the platform, proceed as described below:

Putting up P-shaped safety railings

Rotate the respective safety railings by 90° upwards, until it locks into place (see Figure 17).

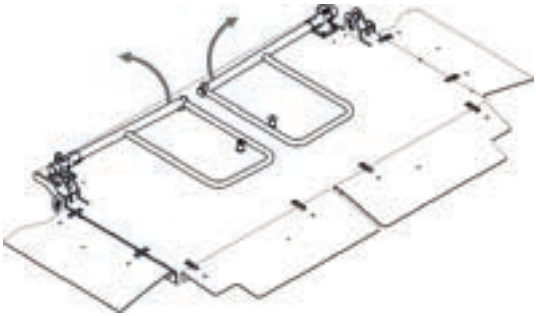


Figure 17: Putting up P-shaped safety railings

Laying down P-shaped safety railings

To unlock, pull up the respective safety railing (**1**, see Figure 18).

Rotate the respective safety railing inwards (**2**), until the rubber block (optional: magnetic pad) touches down onto the platform.

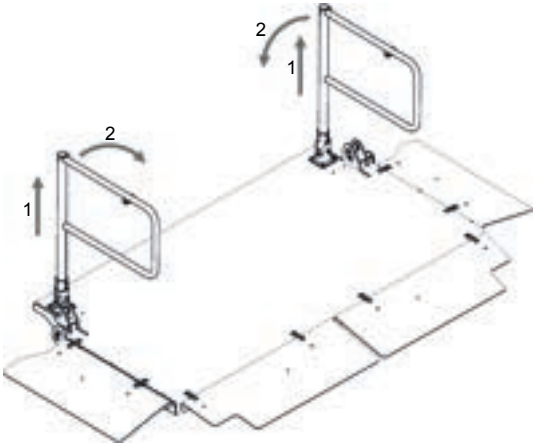


Figure 18: Laying down P-shaped safety railings

Putting up A-shaped safety railings

Briefly pull the respective safety railing towards the center of the platform (**1**, see Figure 19).

Rotate the respective safety railings by 90° upwards (**2**) and lower it until it firmly locks into place.

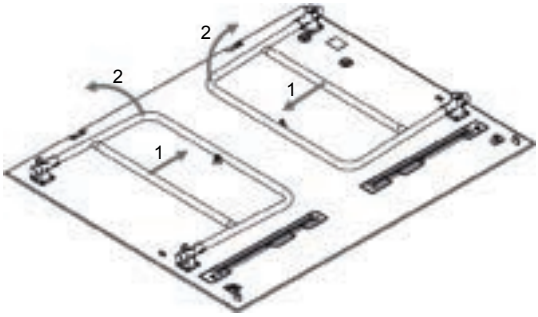


Figure 19: Putting up A-shaped safety railings

Laying down A-shaped safety railings

Pull up the respective safety railing (**1**, see Figure 20).

Then rotate the respective safety railing inwards (**2**), until the rubber block (optional: magnetic pad) touches down onto the platform.

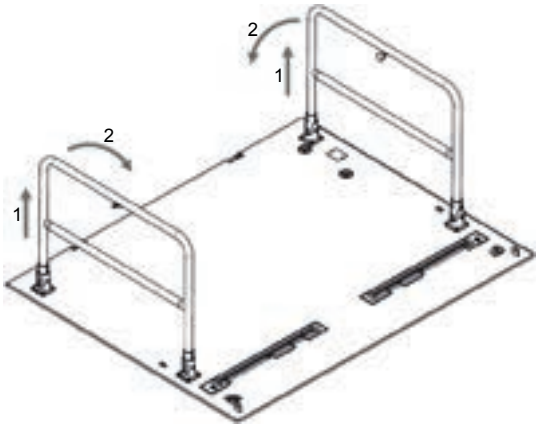


Figure 20: Laying down A-shaped safety railings

5.8. Operating the roll stops

Fold up the roll stops

To fold up a roll stop, operate the knurled wheel next to the roll stop with your foot (see Figure 21).

Fold down the roll stops

Step on the roll stop to fold it down.

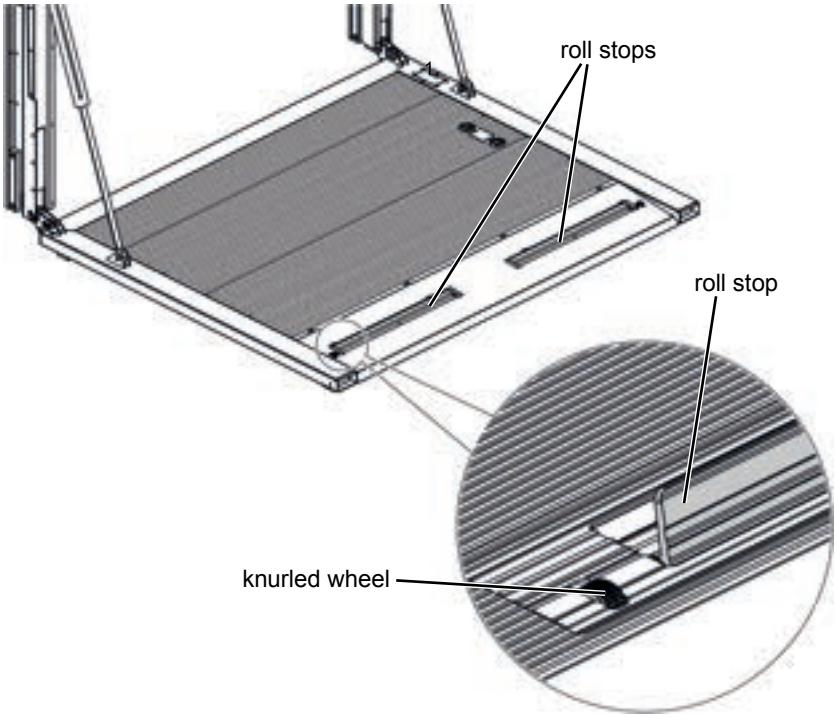


Figure 21: Roll stop

5.9. Use of the platform as a link bridge

Due to the elastic effect of the steel cables from which the platform is suspended, the platform is not suitable for use as a link bridge

Do not use the platform as a link bridge.

6. Maintenance

DANGER!

Risk of injury and property damage due to improperly done maintenance work!

If maintenance work is carried out improperly, this can lead to malfunctions, resulting in the risk of injury and damage to property. These hazards exist both during maintenance work and during subsequent operation of the tail lift.

Maintenance and repairs may only be carried out by technically qualified persons. These persons must be authorized by **PALFINGER Tail Lifts** or by a service center designated by **PALFINGER Tail Lifts**. Other technically qualified persons may carry out maintenance and repairs only after consultation with **PALFINGER Tail Lifts**.

Always switch off the engine of the transport vehicle and remove the ignition key before carrying out maintenance, repair, or cleaning work.

Always use the appropriate tools for (dis-)assembly work and wear gloves.

Secure the platform against downward movement before carrying out maintenance work under the platform.

Note:

Any damage, including consequential damages due to insufficient maintenance and lubrication are excluded from any warranty!

Note:

Make sure that no fluids (e.g., hydraulic oil) leak out during maintenance work, as these can pollute the environment. Dispose oil and oil polluted materials in accordance with the applicable environmental protection regulations.

6.1. Maintenance intervals

Activity	daily	depending on usage	monthly	semi-annually	annually
Checking the presence and condition of the safety signs	X				
Cleaning the tail lift		X			
Lubricating of runner surfaces in the guide frames			X		
Checking of all hydraulic hoses for damage, kinks, and leaks			X		
Checking the hydraulic oil level and refilling as necessary			X		
Lubricating of low-maintenance bearings			X		
Inspection of steel ropes			X		
Inspection of rope pulleys				X	
Checking of screws, nuts, and screw connections of the hydraulic system firm tight seating					X
Changing the hydraulic oil					X

6.2. Checking the presence and condition of the safety signs

Check whether all safety signs are present (see chapter 4, page 32).

Clean all safety signs so that they are clearly visible.

If safety signs are missing or damaged:

Request new safety signs from **PALFINGER Tail Lifts**.

6.3. Cleaning the tail lift

CAUTION!

Damage to paint!

If you clean the tail lift using a pressure washer, damage to the paint may occur up to six weeks after painting.

Cleaning the tail lift with a pressure washer should not be done earlier than six weeks after painting.

The following parts of the tail lift may never be cleaned with a pressure washer:

- electrical components
- foot control
- piston rods
- cylinder seals
- bellows
- solenoid valves
- warning lights
- warning flags

6.4. Lubricating of runner surfaces in the guide frames

Note:

Never lubricate the runners directly. Instead, lubricate the front and back of the guide frames. The runner is lubricated by the grease in the guide frames.

The tools required for cleaning and lubricating the guide frames can be obtained from **PALFINGER** (see Figure 22).

Recommended grease: Shell Gadus, **PALFINGER**-article-no. 2026342

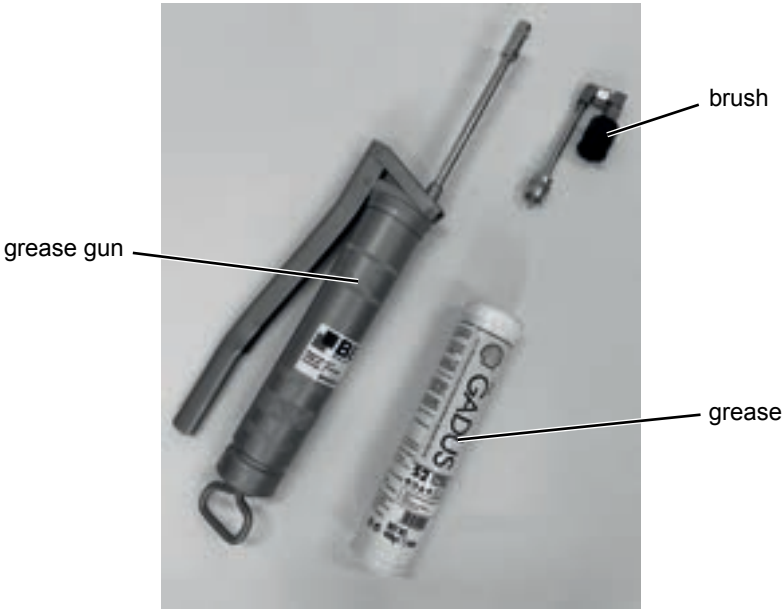


Figure 22: Necessary tools

To lubricate the back of the guide frames:

Open the platform and move it down completely (see chapter 5, page 34).

Apply the grease above the runner at the rear of one of the guide frames, left and right of the rope and in the back height range of 1 meter. (see Figure 23).

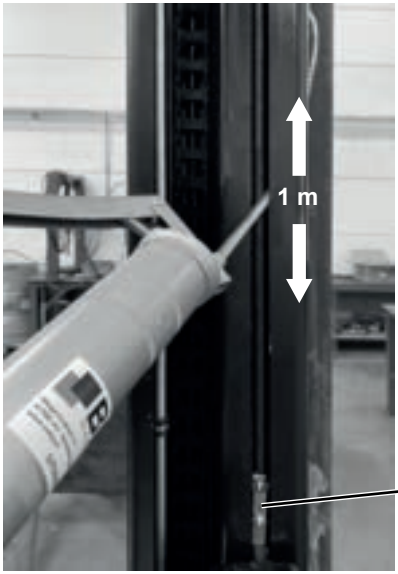


Figure 23: Lubricate the runner

Do the same on the other guide frame.

To lubricate the front of the guide frames:

Lift the platform to the highest position (see chapter 5, page 34).

Click the brush onto the grease gun (see Figure 24, page 50).

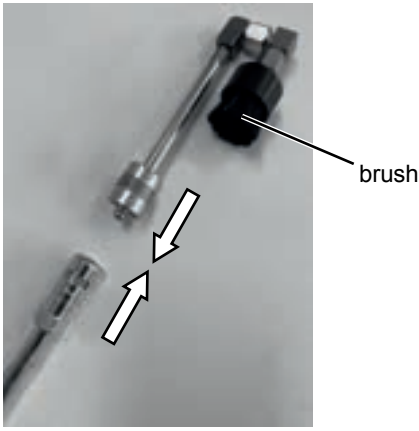


Figure 24: Clicking the brush onto the grease gun

Move the brush in one side of one guide frame against the front of the sliding surface from the top downwards, starting firmly under the runner. Operate the hand pump of the grease gun while doing this (see Figure 25, page 51). Distribute the grease evenly over a length of 2 meters.

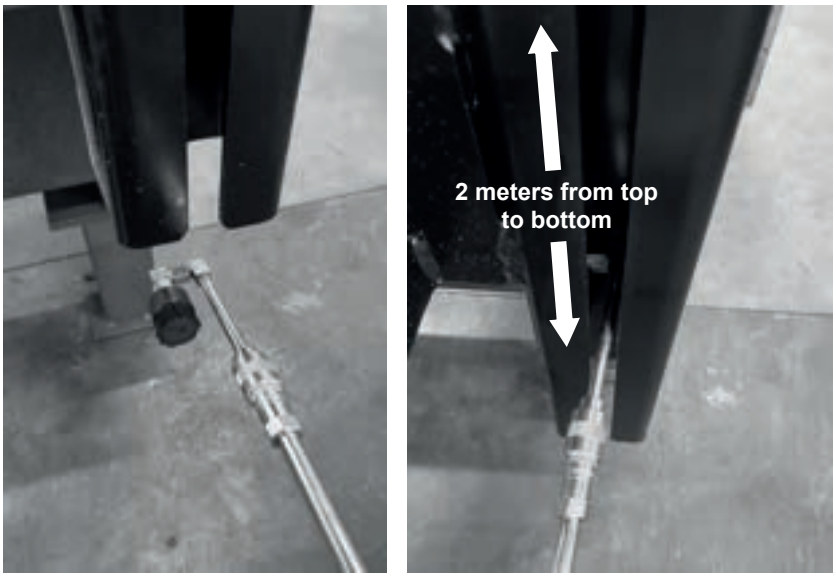


Figure 25: Lubricate the runner frontside

Do the same on the other guide frame.

6.5. Checking of all hydraulic hoses for damage, kinks, and leaks

WARNING!

Risk of injury from hydraulic oil blowing out!

Oil can blow out at high pressure from damaged hoses and lines of the hydraulic system and have a cutting effect. Injuries and poisoning are the results.

Never try to seal oil leaks by hand.

Take the trail lift out of operation immediately if there is a leak in the hydraulic system.

Visually inspect all hydraulic hoses. Look especially for leaks around the connections.

Replace defective hydraulic hoses and lines immediately with hoses and lines of the specified quality (SAE 100 R2A according to DIN 20021:1997-02).

6.6. Checking the hydraulic oil level and refilling as necessary

Open the platform and move it down completely (see chapter 5, page 34).

Using the indicator at the oil reservoir, check whether the indication is within the prescribed marked range.

If required, refill oil up to the level mark or up to the max. mark.

Recommended hydraulic oil grade:
Aero Shell Fluid 41
Operation temperature: –54 °C to 90 °C
PALFINGER-article-no 69817211

6.7. Lubricating of low-maintenance bearings

Use a grease gun to press grease through the lubrication nipples into the low-maintenance bearings on the hydraulic cylinders (two low-maintenance bearings per hydraulic cylinder). Press grease in until it comes out at the sides.

Recommended grease: Shell Gadus, **PALFINGER**-article-no. 2026342

Lubricate the bearings by which the platform is suspended from the runners with spray oil.

6.8. Inspection of steel ropes

Move the platform to the lowest position (see chapter 5, page 34)

Move a finger along the ropes in both guide frames to feel for any broken wires.

The ropes should feel consistently smooth. Any pricking sensation indicates the beginning of a rope break.

In this case:

Carry out a visual inspection of the steel ropes

If the visual inspection reveals breaks or other damage to a rope:

Take the trail lift out of operation.

Have the steel ropes replaced by a **PALFINGER Tail Lifts** service center or by your vehicle manufacturer.

6.9. Inspection of rope pulleys

Listen attentively to determine whether the rope pulleys actually run silently.

If a rope pulley has a noticeable running noise:

Apply grease to the sides of the sheaves between the sheave and the bracket, e.g., with a brush (Lubrication points shown as an example in Figure 26, page 53).

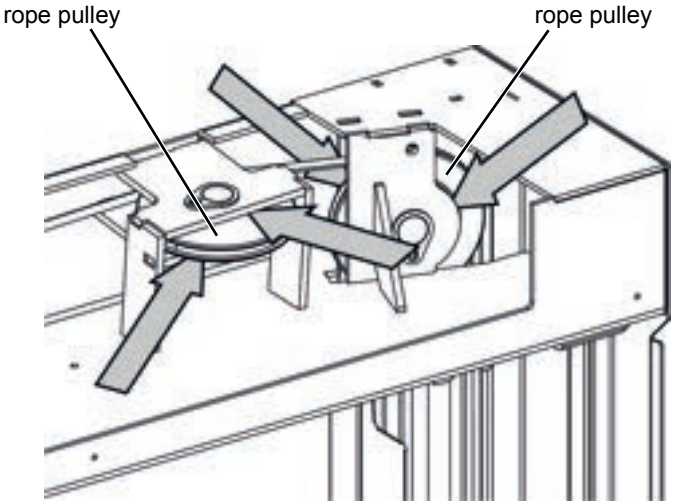


Figure 26: Lubrication points for lubricating the rope pulleys

6.10. Checking of screws, nuts, and screw connections of the hydraulic system firm tight seating

Note:
Only use suitable tools for checking.

Check firm tight seating of all screws and nuts.

Check the screw fittings and pipes of the hydraulic system for tight seat

Re-tighten the connections as needed.

6.11. Changing the hydraulic oil

Open the platform and move it down completely (see chapter 5, page 34).

Remove the breather filter (see Figure 6, page 22).

Suck of the hydraulic oil via the filler opening.

If the hydraulic oil is heavily contaminated, you must clean the hydraulic oil reservoir:

Remove the stop on the rear side of the hydraulic oil reservoir.

Loosen the tension clamp (see Figure 6, page 22).

Remove the hydraulic oil reservoir from the valve block (see Figure 6, page 22). Pay attention to the suction and return lines and the suction filter in the hydraulic oil reservoir.

Lift the hydraulic oil reservoir up out of the guide and clean it outside the vehicle.

Replace the hydraulic oil reservoir and reconnect it. When doing so, carry out the steps described above in reverse order.

Refill oil up to the level mark or up to the max. mark.

Recommended hydraulic oil grade:
Aero Shell Fluid 41
Operation temperature: –54 °C to 90 °C
PALFINGER-article-no 69817211

After the oil tank has been filled:

Drive the tail lift through twice.

Check the oil level again (see chapter 6.6, page 52).

If necessary, top up oil or drain oil.

Dispose used oil and oil containing filters properly according to the locally applicable regulations.

7. Preventive maintenance

The following components must be replaced every four years as preventive maintenance:

- Steel ropes
- Hydraulic hoses
- Rope pulleys with bearings

Have the preventive maintenance carried out by a **PALFINGER Tail Lifts** service center or by your vehicle manufacturer.

8. Faults

Faults may occur even in the best maintained and serviced tail lift.

The following description of possible faults will enable you to recognize faults quickly and eliminate them saving time and costs.

For troubleshooting, preferably a test lamp can be used. Use the ground connector on the PC board of the control unit for trouble-shooting (see Figure 7, page 23).

8.1. List of repair shops

Troubleshooting and rectification of faults should always be carried out at a **PALFINGER** authorized workshop.

► You can find your nearest authorized workshop in the location search at www.palfinger.com under "Sales and Service Search".

8.1.1. Causes of fault and fault rectification

Before switching on		
Fault	**Possible cause**	**Remedy**
Optical indication in driver's cab flashes rapidly	Tilt sensor b15 defective	Replace tilt sensor b15

Switching on		
Fault	**Possible cause**	**Remedy**
LED on Control unit does not flash	Fuses in power unit e1 or e2 have tripped	Replace fuses
	Control unit defective	Replace control unit

 **Open** (platform opens the operating position)		
Fault	**Possible cause**	**Remedy**
Platform does not open	Pushbutton defective	Use test lamp to check contacts in operating element according to circuit diagram
	Valve plug at S3 or S8 has no voltage	Check with test lamp
	Inductive proximity switch defective	Open platform in emergency operation mode (see chapter 8.1.2, page 61 Check switch, replace if necessary (position: see chapter 8.1.7, page 64)
Warning lamps on platform are not flashing when platform is open	Tilt sensor b15 at the platform misadjusted or defective	Adjust or replace Tilt sensor
	Control unit defective	Replace control unit
	Warning lamps defective	Replace warning lamps

 **Lift** (platform rises up to the loading edge)		
Fault	**Possible cause**	**Remedy**
Platform does not lift	Light barrier has been triggered	see chapter 8.1.2, page 61
	Pushbutton defective	Use test lamp to check contacts in operating element according to circuit diagram

 **Lift** (platform rises up to the loading edge)		
Fault	**Possible cause**	**Remedy**
Platform does not lift	Control unit does not deliver output at J 1/3	Check the circuit board of the control unit according to the wiring diagram at connector J 1/3 with a test lamp.
	Motor contactor on the power unit does not switch on or is defective	Check motor contactor with test lamp
	Thermoswitch tripped	Allow motor to cool down
Platform is not lifted up although hydraulic unit is running	Solenoid valves S 1 and S 2 at lift cylinder contaminated or defective	Clean or replace valves
	Suction filter at pump contaminated	Clean or replace suction filter (see chapter 6.11, page 54)
	Platform is overloaded	Reduce load according to load diagram
	Hydraulic pump is defective	Replace hydraulic pump
	Pressure splitter contaminated or defective	Clean or replace pressure splitter
	Pressure relief valve misadjusted or defective	Clean or replace valve
Platform can not be lifted completely	Vehicle batteries empty	Charge batteries, replace if necessary
	Hydraulic oil level too low	Check oil level, top up, if necessary, check hydraulic system for leakage

 **Close** (platform closes)		
Fault	**Possible cause**	**Remedy**
Platform can not be closed completely	Vehicle batteries empty	Charge batteries, replace if necessary
	Hydraulic oil level too low	Check oil level, top up, if necessary, check hydraulic system for leakage

 **Lower** (platform moves to the ground)		
Störung	**Mögliche Ursachen**	**Abhilfe**
Platform does not come down	Slice bearing sluggish	Clean and lubricate slide bearings (see chapter 6.4, page48)
	Hydraulic oil too thick	Change oil, use oil grade as recommended (see chapter 6.11, page 54)
	Solenoid valve S 1 defective	Replace valve
Platform does not come down when operated with hand cable control	Pushbutton defective	Use test lamp to check contacts in operating element according to circuit diagram
	Control unit does not deliver output at J 4/15	Disconnect plug J 4, check terminal 15 with test lamp
	No voltage at valve plug S 1 (cable defective)	Check with test lamp

 **Lower** (platform moves to the ground)		
Störung	**Mögliche Ursachen**	**Abhilfe**
Platform comes down automatically	Solenoid valve S 1 at lift cylinder contaminated or defective	Clean or replace valve

8.1.2. Emergency operation mode

If the tail lift can no longer be operated due to a fault in the control unit, it can be switched to emergency operation mode. When the emergency mode is enabled the sensors via which the control unit measures the position of the platform are not polled.

CAUTION!

Risk of material damage in emergency operation mode!

In emergency mode, the sensors that the control unit uses to measure the position of the platform are disabled. The tail lift can be moved beyond the configured end positions. As a result, the tail lift and the vehicle may be damaged.

- ► In emergency operation mode, closely monitor any movement of the platform.
- ► Release the operating elements as soon as the platform reaches the intended position.

Enable the emergency operation mode.

With a Slimpanel:

- ► Press and hold the additional pushbutton and the pushbuttons **3** and **4** until the warning lights on the platform stop flashing for a short time and light up continuously (see Figure 8, page 24).

With a control panel:

- ► Press and hold the additional pushbutton and the pushbuttons **1**, **2** and **3** until the warning lights on the platform stop flashing for a short time and light up continuously (see Figure 9, page 25).

The emergency operation mode is enabled. The 7-segment-display on the control unit indicates “E”. The tail lift must be moved manually now. All automatic movements are disabled.

Close the platform in emergency operation mode

► Lower the platform, but to avoid scratches, do not lower it completely.

► Close the platform.

► Raise the vertical platform completely.

Open the platform in emergency operation mode

► Lower the platform until the loading edge of the platform is completely free.

► Open the platform

Disable emergency operation mode

► Switch the tail lift off and on again at the control unit.

Or:

► Briefly interrupt the power supply to the tail lift (e.g., by switching the battery switch off and on).

The emergency operation mode is disabled. The 7-segment-display on the control unit indicates “I”.

8.1.3. The platform cannot be raised any further

If the light barrier (see Figure 3, page 19) is triggered when lifting the platform, the platform stops and cannot be lifted any further.

To be able to lift the platform again after the light barrier has been triggered:

► Lower the platform slightly (see chapter 3.6, page 24).

The platform can now be lifted again.

8.1.4. Rope break

In the event of a rope brake, the loading platform automatically falls into the locking hooks attached to the guide frame. This is associated with a loud noise, the platform then hangs on one side.

If a rope brake occurs:

- ► Stop operating the tail lift.
- ► Immediately contact **PALFINGER Tail Lifts** or a service centre authorized by **PALFINGER Tail Lifts**.

8.1.5. Hose rupture

WARNING!

Risk of injury from hydraulic oil blowing out!

Oil can blow out at high pressure from damaged hoses and lines of the hydraulic system and have a cutting effect. Injuries and poisoning are the results.

- ► Never try to seal oil leaks by hand.
- ► Take the trail lift out of operation immediately if there is a leak in the hydraulic system.

- ► Stop operating the tail lift.
- ► In the event of a hose rupture, immediately contact **PALFINGER Tail Lifts** or a service centre authorized by **PALFINGER Tail Lifts**.

8.1.6. Tail lift in oblique position

If the tail lift is in an oblique position, the system can be aligned horizontally by **PALFINGER Tail Lifts**, a service centre authorized by **PALFINGER Tail Lifts,** or a technically qualified person as follows.

The loading platform is fastened with a wire rope on both sides. The platform can only be aligned horizontally if the wire ropes are sufficiently tensioned. For this purpose, the lifting function of the platform must be briefly actuated.

There is a threaded bar to which the wire rope is connected at the height of the platform. By adjusting the screws in the threaded bar, the platform (left/right) can be aligned horizontally.

► After adjustment, move the platform five times up and down to correct any play in the system.

8.1.7. Inductive proximity switch

The inductive proximity switch can be installed in different places. In the case of the SMG tail lifts, it is installed in the upper part of the left pillar (see Figure 27). In the case of the tail lifts SCL, which are optimized for racing purposes, it is located at the bottom right.

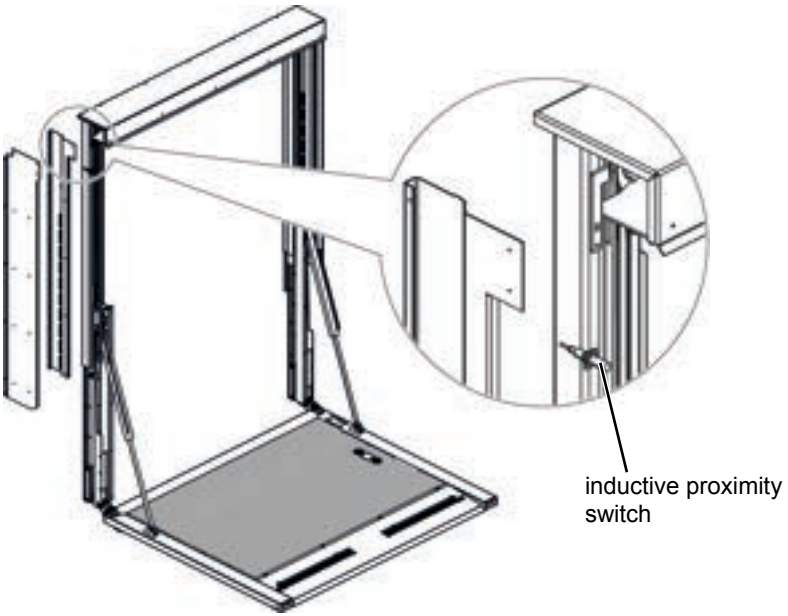
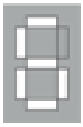


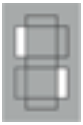
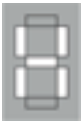
Figure 27: Inductive proximity switch

8.2. Error recognition by using the 7-segment-display

This function is only available with MBB Control.

Status indication 7 Segments, static, system LED flashing green (2 Hz)	
Status	**Description**
	System switched on and all right, tail lift switched off.
	System switched on and all right, tail lift ready for operation.

Error indication 7 segments, flashing (0.5 Hz), system LED flashing red (2 Hz)		
Status	**Description**	**Action for error reset**
	Undervoltage	Switch tail lift off/on
	Head tilt sensor (B15): Faulty sensor signal	Automatic error reset as soon as correct values are reached
	Warnfix: short-circuit recognized	Switch tail lift off/on or close platform
	Box body light/control box LED: short-circuit recognized	

Error indication 7 segments, flashing (0.5 Hz), system LED flashing red (2 Hz)		
Status	**Description**	**Action for error reset**
	General short-circuit error of external system	Switch tail lift off/on or de-energize control unit
	Error of special function (e.g., light barrier is defective)	Change to emergency operating mode
		Replace light barrier
	For tail lifts with second motor contactor: motor contactor "sticks"	Change to emergency operating mode
		Automatic error reset as soon as correct values are reached
		Disconnect the monitoring cable from the motor contactor to the control unit
		Disconnect tilt sensor b15
	Short circuit in the cable of the control unit	Automatic error reset as soon as the short circuit has been removed

Valve coil monitoring (not available for all models)		
Status	**Description**	**Action for error reset**
	While lifting the platform the “motor relay coil resistance” error was detected.	Automatic error reset as soon as correct values are reached
	Not used or reserved	

Valve coil monitoring (not available for all models)		
Status	**Description**	**Action for error reset**
	While opening the platform the “valve coil resistance open S3_S4” or “motor relay resistance” error was detected	Automatic error reset as soon as correct values are reached
	While closing the platform the “motor relay resistance” or “S5” error was detected	
	While lowering the platform the “valve coil resistance lower _S1_S2” error was detected	

Service functions (not available for all models)		
Status	Description	Action for disabling
	No voltage across J1/2 → check fuse	Atomatic error reset as soon as voltage is present across J1/2
	Emergency program, sensor system being bridged. Re-enable by pressing and holding “Open” and “Lower” push-buttons for more than 10 seconds	Switch off/on tail lift

Service functions (not available for all models)		
Status	Description	Action for disabling
	Error diagnosis of all inputs is active. Warnfix is activated upon each push-button actuation	Remove service plug
	Pairing mode for wireless remote control unit is enabled	Is reset automatically if connected or after one minute if not connected
	„Selflock“ function is active. Tail lift is locked via radio receiver (e.g. ICP). Selflock = automatic locking of the control panel when the vehicle is left	Reset „Selflock“ function: Switch off/on control box or place radio transmitter near the radio receiver again
	Interface not active due to short circuit of “JP” connector (CAN)	De-energize the control unit for some seconds
	Adjustment mode is enabled. The platform angle can be corrected	8 x output a plus pulse to plug J3, pin 6

8.3. Service in case of malfunctions

In case of any questions or problems to which this operating manual does not offer an answer or solution, please contact **PALFINGER Tail Lifts**.

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9. Hydraulic diagram

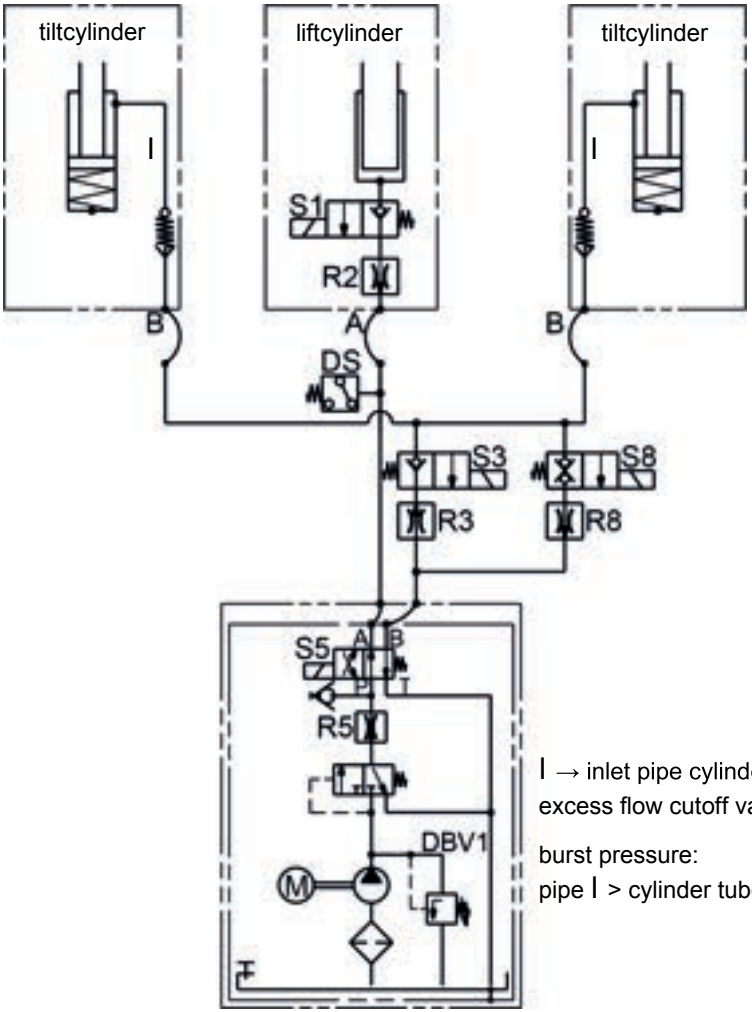


Figure 28: Hydraulic diagram

10. Electric circuit diagram

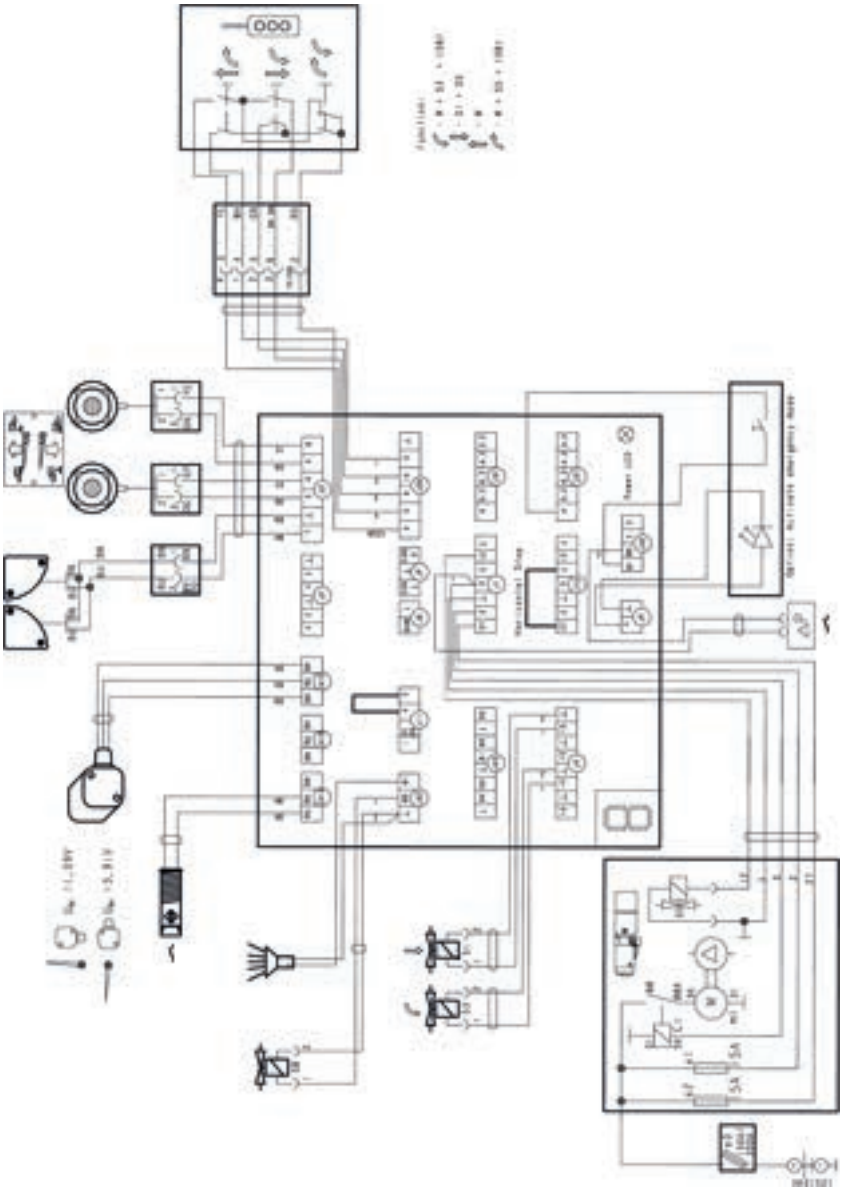


Figure 29: Electric circuit diagram

11. Load diagrams

The following tables show the maximum allowed weight of the payload (Q). The table applicable for your tail lift can also be found on the lateral operating element.

The payload (Q) comprises everything placed on the platform, e.g., the transported goods, the operator, and any material handling equipment.

The maximum permissible payload (Q) depends on the load distance (a, see Figure 30). The load distance (a) is the distance between the rear edge of the truck load area and the payload center of gravity (S, see savety instruction on page 72).

The maximum permissible payload (Q) for the respective maximum permissible load distance (a) is permanently indicated on the platform surface with corresponding markings.

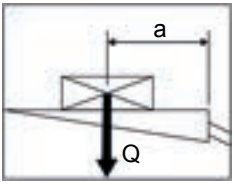
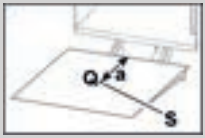


Figure 30: Load diagram

DANGER!

Risk of personal injury and material damage!

If the maximum permissible payload (Q) or the maximum permissible load distance (a) is exceeded, the tail lift could fall down! This can result in personal injuries or the tail lift could be severely damaged. In such a case any warranties shall become void!



When you position the payload (Q) in the center between the left and right platform edge:

► Load the tail lift not heavier than the payload (Q), which is indicated in the table next to the respective load distance (a)!

When you position the payload (Q) at the left or right platform edge:

► Load the tail lift not heavier than half the payload (½ Q), which is indicated in the table next to the respective load distance (a)!

11.1. Tail lifts SCL

	Q max 1500 kg	
	a (mm)	Q (kg)
V 1500 SCL	1000	1500
	1200	1240
	1500	900
	1950	790
	2400	600

	Q max 2000 kg	
	a (mm)	Q (kg)
V 2000 SCL	1000	2000
	1200	1660
	1500	1200
	1950	1060
	2400	800

	Q max 3000 kg	
	a (mm)	Q (kg)
V 2500 SCL	1000	2500
	1200	2080
	1500	1660
	1950	1330
	2400	1000

	Q max 3000 kg	
	a (mm)	Q (kg)
V 3000 SCL	1000	3000
	1200	2500
	1500	2000
	1950	1600
	2400	1200

11.1. Tail lifts SML

	Q max 1000 kg	
	a (mm)	Q (kg)
V 1000 SML	1000	1000
	1200	830
	1500	660
	1950	530
	2400	400

	Q max 1500 kg	
	a (mm)	Q (kg)
V 1500 SML	1000	1500
	1200	1250
	1500	1000
	1950	800
	2400	600

11.2. Tail lifts SGL

	Q max 1750 kg	
	a (mm)	Q (kg)
V 1750 SGL	1000	1750
	1200	1450
	1500	1150
	1950	920
	2400	700

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