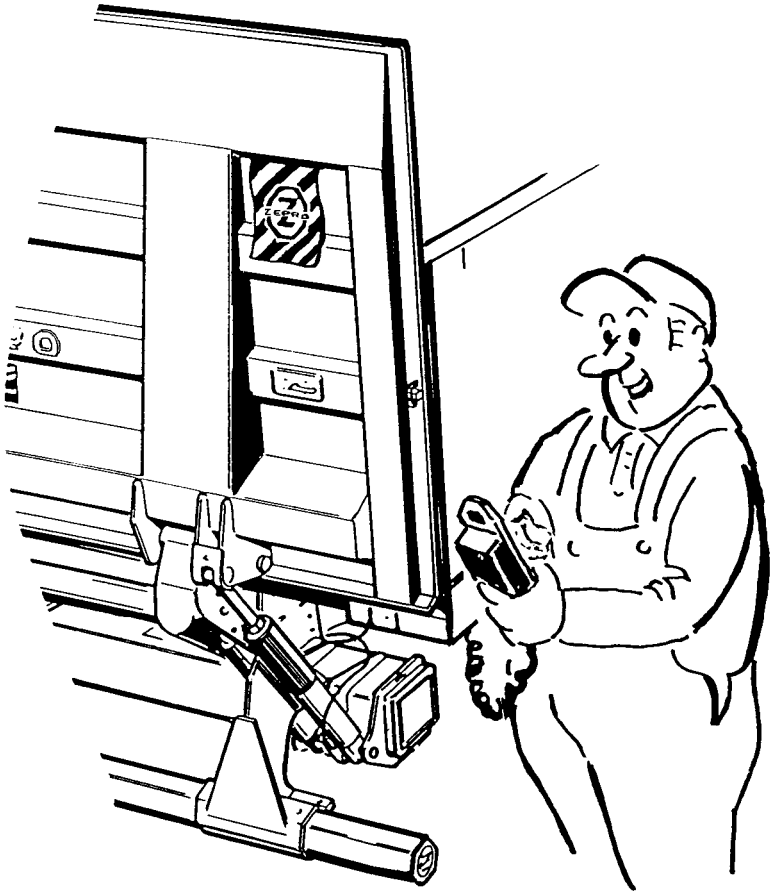
Service instruction

Tail lift
Electrical equipment and function of the lift



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ZEPRO

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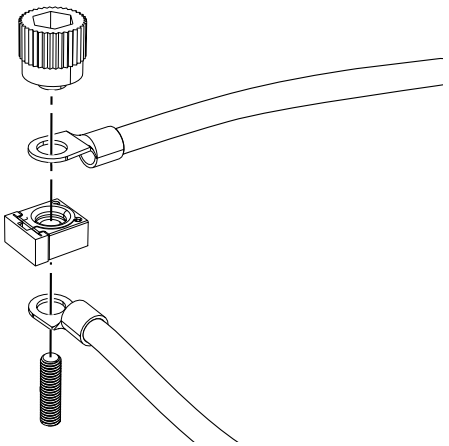
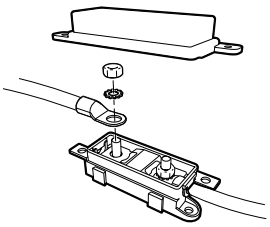
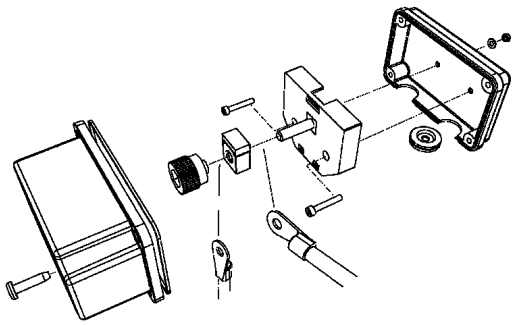
Electric equipment

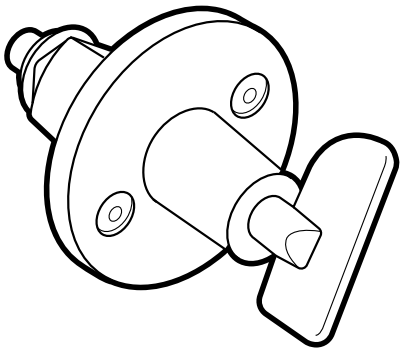
Before you start, read the entire instruction carefully.

IMPORTANT!
To observe before service or maintenance is carried out:
Lower and tilt down so that the platform rests against the ground, so that the pressure in the hydraulic system is reduced to a minimum.
Disconnect the power supply by disconnecting the cable at the main fuse, alternatively switch off the main power with the main switch if one is fitted. Main fuse and main switch are available in several different designs, below are some common examples.









Check the fuse box for tightness and cleanliness. If the box is dirty and/or damp on the inside or has irritated contact surfaces, check the seals and box, and replace the parts that may be the cause of the box not being tight. Also check that the fuse box has a protected location as close to the battery as possible and with the entries for the cables downwards to minimize the risk of water running with the cables into the box.

Voltage setting of the lift

1. If applicable, ensure that the main switch is in the "Off" position.
2. If applicable, ensure that the cab switch (CS) is in the "Off" position.
3. When using a fuse box, connect the cable (1) to the battery's positive terminal and to the fuse box and place the fuse (2) above, see Figure 79.
4. When connecting directly to the positive battery terminal, place the fuse (2) on the positive terminal, see Figure 79.
5. Connect the main power cable (3) to the fuse box / positive terminal, see Figure 79 - Figure 80.
6. Screw tight the cable connections and fuse with the knob (4). Install the cables at 90° or 180° from each other. Install the fuse at right angles to the cables; see Figure 79 - Figure 80.

IMPORTANT!
The knob must bear against and centre the cable lug so that it does not come into contact with the screw. Incorrect installation can cause the fuse to be ineffective. Risk of fire in the event of a short circuit.

7. Install the fuse box cover.
8. Where fitted, set the main switch to the ON position.
9. Where fitted, set the cab switch to the ON position.

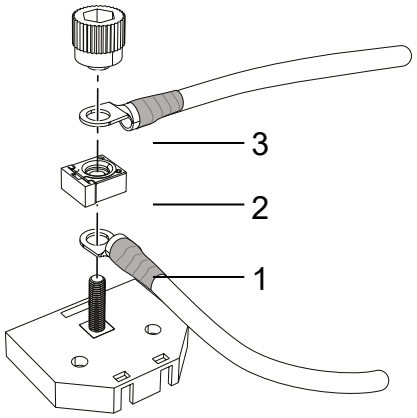


Figure 79. Connection to the fuse box

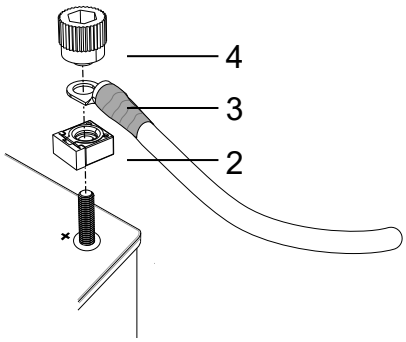


Figure 80. Connection to the battery's positive terminal

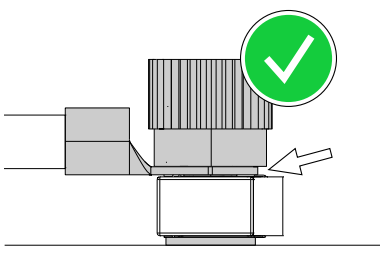


Figure 81. Correct installation

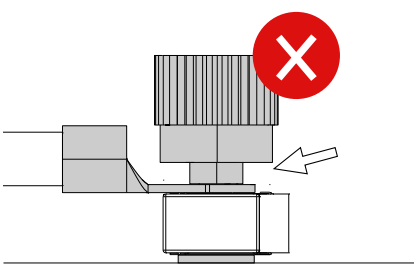


Figure 82. Incorrect installation

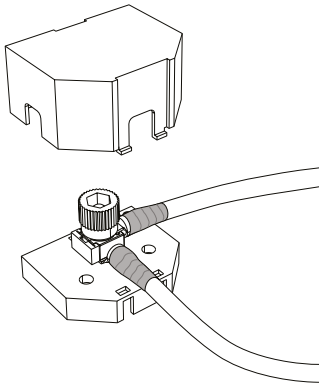
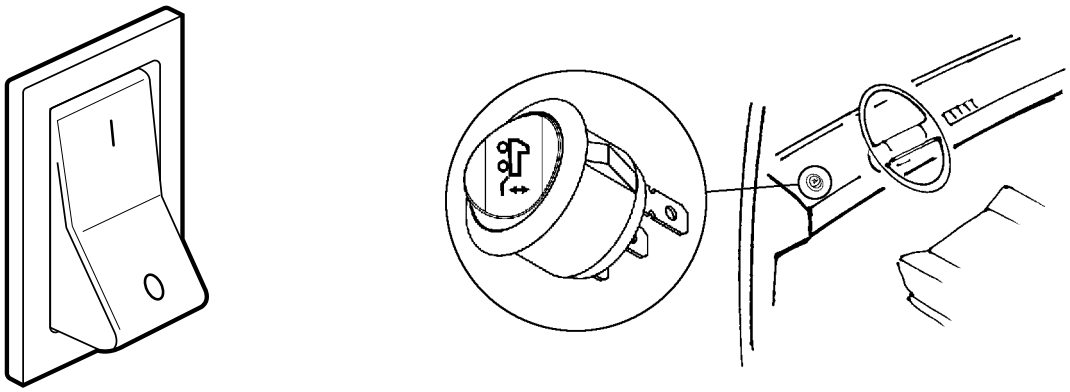


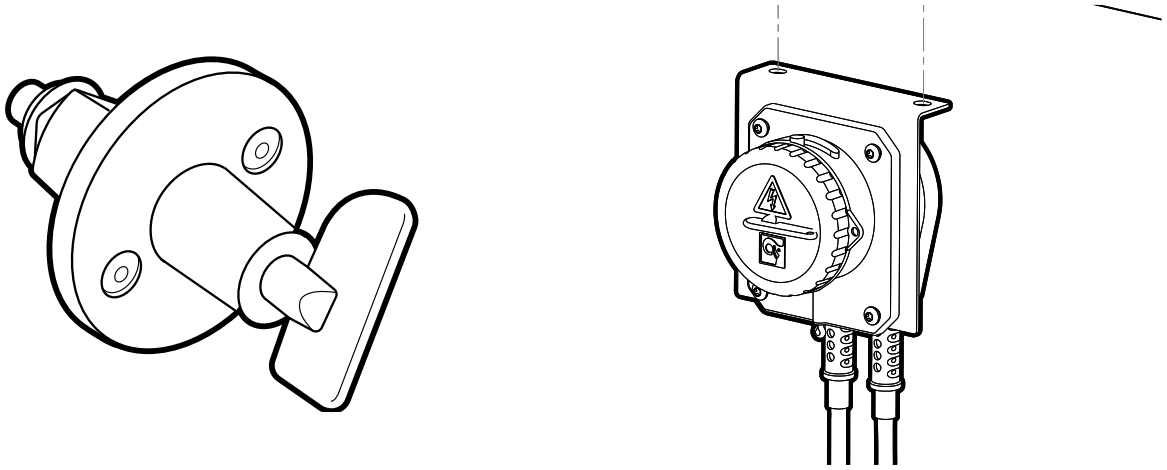
Figure 83. Cover, fuse box

Cabin and main switch

The tail lift can be equipped with a cabin switch with which the operating current is switched On/Off. When the operating current is switched off, the lift is ”locked”. The cab switch must always be in the Off position during transport and when the tail lift is not in use.
The tail lift can also be equipped with a main switch. With this, the main current is operated Off/On. When the main power is switched off, the lift is ”locked”. In cases where the tail lift is not equipped with a cab switch, the main switch must always be in the Off position during transport and when the tail lift is not in use.



Exemple of cabin switch



Exempel of main switch

Main power cable, earth cable, main fuse and main switch
The main switch must be mounted when the cab switch (CS) is not used, for example when mounting on a trailer. Main switch can also be mounted in combination with cabin switch (CS).

IMPORTANT!
Earthing should primarily be done to the negative pole of the battery. Alternatively, another well-protected grounding point that does not cause increased voltage drop can be used. The grounding point must be so well protected that increased voltage drop due to oxidation over time can be excluded. Risk of material damage. Warranty rights do not apply to material damage caused by insufficient grounding.

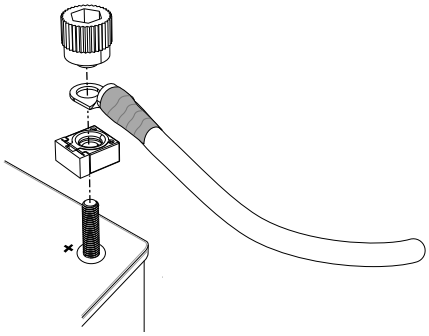


Figure 6.Connection to the plus pole of the battery

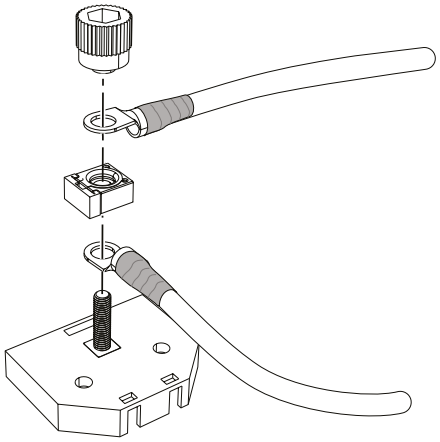
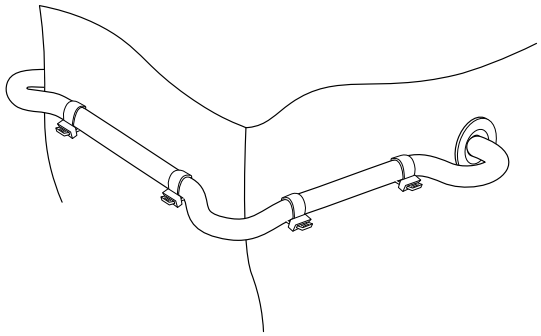


Figure 6.Connection to the safety box.

Cabling and contact surfaces

Check the wiring and contact surfaces of all service points. Extra care must be taken to check the main power cable all the way to the battery via the fuse box. If any of the cables are frayed or otherwise in such poor condition that it is judged that they are substandard from a safety point of view, they must be replaced. Zepro recommends that cables be replaced at the slightest damage to the protective casing or otherwise damaged to prevent a possible short circuit. When changing the wiring, the power must be cut off at the fuse box.
(See below.)



Protect the cable from sharp edges and use cable glands

Always use shrink tubing when installing cable lugs

Control of electrical systems

Ensure that the battery and charging generator have sufficient capacity for the current product and that a cable with sufficient wire area is used.

Below is an example of a hydraulic unit.
Note! See the respective lift model's assembly instructions for the correct hydraulic unit and table.

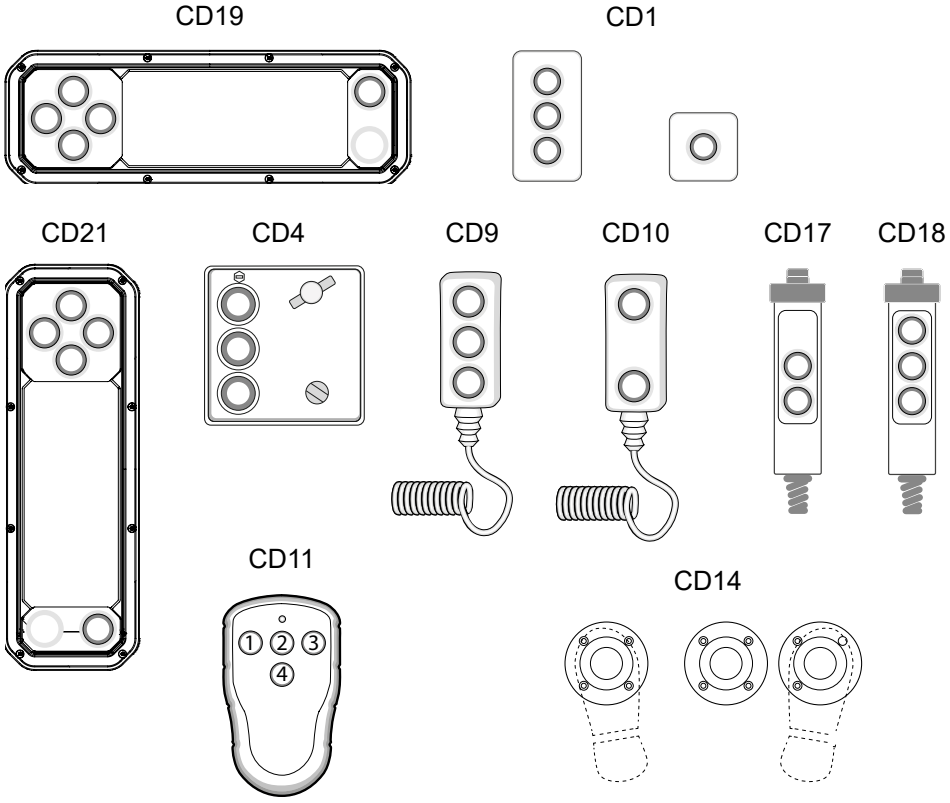
Hydraulic unit 7050	**12 volt**	**24 Volt**
Pump - Motor unit	245 A	145 A
Minimum recommended conductor cross-sectional area (copper cables, plus and minus cables)		
Control power cable	1.5 mm^2	1.5 mm^2
Main power cable, L < 8m	35 mm^2	35 mm^2
Main power cable, L = 8 - 15m	50 mm^2	35 mm^2
Main power cable, L > 15m	-	50 mm^2
Battery		
Min. capacity, I_{min} (available for lift)	180 Ah	180 Ah
Min. voltage during operation, U_{min} (at lift)	9 Volt	18 Volt

NOTE!
Ensure that the tail lift has access to the minimum recommended current capacity (Imin).
Some vehicle models have limitations on how much power the tail lift can access from the existing battery. Some vehicle models do not fully charge the battery. It may therefore be necessary to change to a battery and sometimes also to a charging generator with a larger capacity.

Control units

All functions of the tail lift are controlled from one or more control devices. The lift can be operated with several different models of fixed and cabled controls as well as remote controls (radio).
One of the operating devices is primary, which means that it contains all possible functions for the current tail lift. The remaining controls are secondary, which may mean that the number of functions is limited for safety reasons.

Below is a selection of the most common actuators. Possible models vary depending on the lift model, configuration and current market.



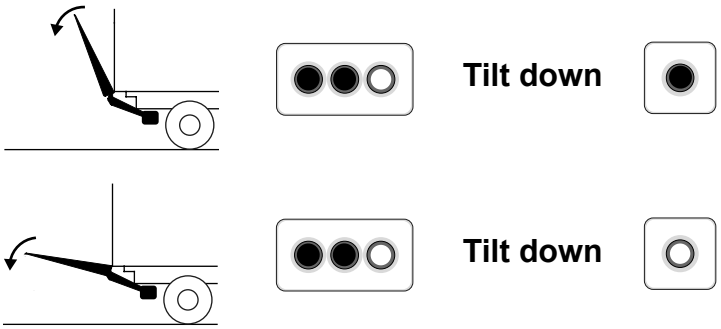
All control device functions must be checked. In the event of any errors, troubleshooting must take place and the errors corrected, if necessary replace incorrect details. If the lift is equipped with a remote control, it must also be tested.
Check that the rubber seals are intact and seal properly. Water in actuators can generate involuntary movements of the lift. If the operating devices are equipped with a heating cable, they must also be checked

Continue to check actuator junction box. Check in the same way as for the fuse box, as well as the circuit board’s contact surfaces (terminals). Remedy any errors and / or replace parts as necessary.

Control of the control units and the lift’s functions

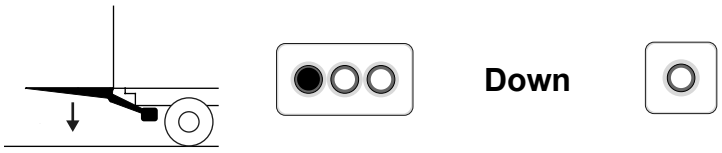
Here it is described how the tail lift is operated. The pictures show the control unit mounted on the right side of the vehicle.
For other types of controls and location, see the Owner’s Manual.

Tilt down
Press and hold the buttons ”Tilt” (2) and ”Down” (3) in the order mentioned.

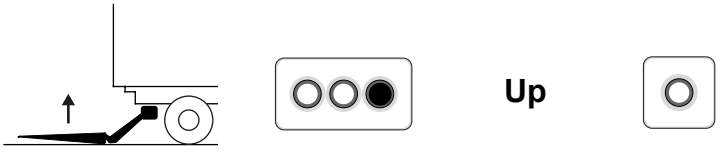


Note!
On some lift models, the platform can be tilted more than -10° if two-hand operation is used. When tilting downwards without two-hand operation, the tilt movement stops at -10 degrees. As long as the platform angle is -10 degrees or less, operation is only possible with the primary actuator and with the two-hand function button (4) pressed.

Down
Press and hold the ”Down” button (3). The platform is lowered at a constant speed.

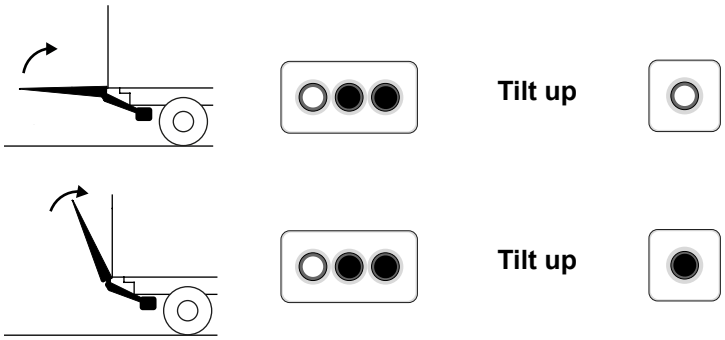


Up
Press and hold the ”Up” button (1). The platform is raised at a constant speed.



Tilt up

When tilting upwards, two-handed operation is used. Press and hold the buttons ”Tilt” (2) and ”Up” (1) in the order mentioned. The control system reads the angle of the platform. If the risk of entrapment is assessed as high, the button for the 2-glove function (4) also needs to be pressed. The platform tilts up at a constant speed.

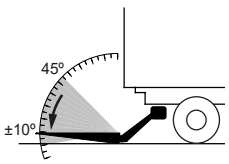


Electric autotilt

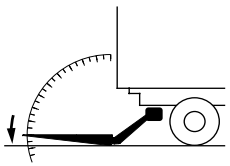
The electric autotilt function is available as an option and simplifies the operation of the tail lift. Autotilt-down is activated automatically when using the Down function and then when the platform moves towards the ground provided that the angle of the platform is less than 45°. The function means that the tip of the platform is automatically tilted downwards towards the substrate. In auto-tilt-down, the tilt function is driven solely by the force of gravity. For the fastest handling, the platform should therefore first be tilted manually to a horizontal position before autotilt is activated.

Autotilt-up is activated when using the Up function when the platform is in the ground position. The function means that when the Up function is activated, the platform is automatically tilted up to the set angle (horizontal position) before it moves upwards.

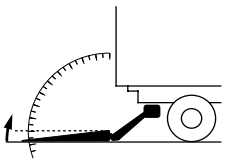
Autotilt symbol



Zone where autotilt is available



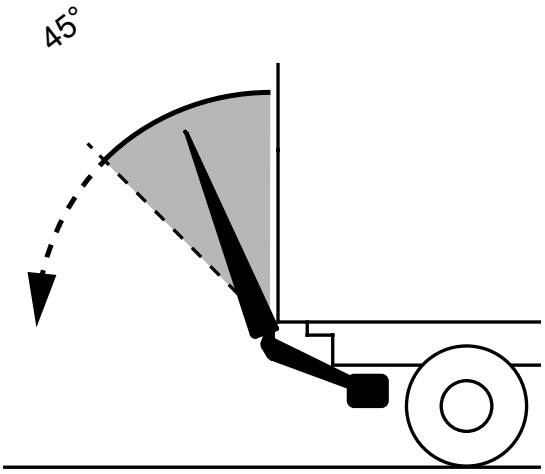
Lowering against the ground



Elevation from the ground

Control of quick opening

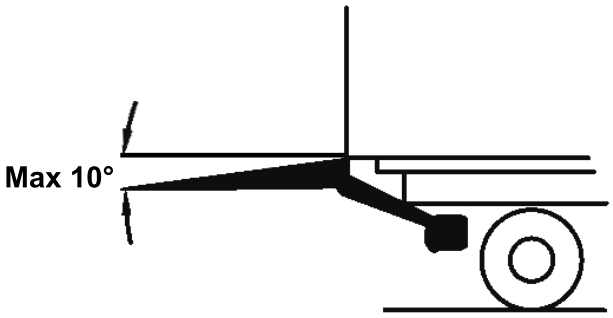
Quick opening
If the lift is equipped with quick opening, a check must be made.
The function allows the platform to be maneuvered from vertical to horizontal position at higher speed.
The function is activated automatically when the ”Tilt down” function is used, provided that operation is done with the 2-hand function. On tail lifts with the control system ZePRO1, it is also required that the angle of the platform at the start of movement is above 45°, (within the gray area) see picture below.



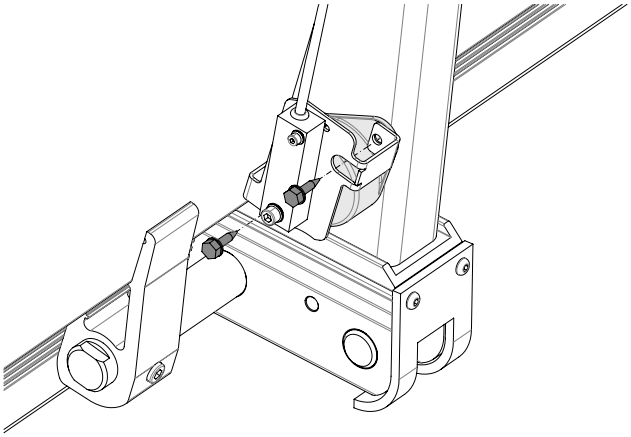
Quick opening

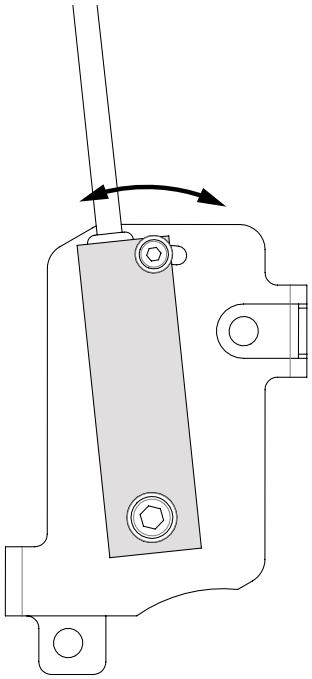
Control of tilt angle, max -10°

If the tilt down angle is more than -10°, most lift models have adjustable cylinders.
Adjust these so that the angle stays at a maximum of -10° below the horizontal plane when the platform is at deck height.



If the lift does not have adjustable tilt cylinders: Applies to Z 45/75 and Z3N models. In these cases, there must be an angle sensor. attached to the platform, this angle sensor has an adjustable mount. see pictures below.





Alarm for open platform

Check that the lamp in the driver’s cab for the alarm for open platform is activated when the platform is not closed against the stop / locker. Troubleshoot and fix if necessary.

Alarm for open platform
The alarm consists of a warning light (placed in the driver’s cab), which lights up if the lift is not pressed against the rear posts.
The device consists of:

*Pressure switch located on the line to the tilt cylinders.
*Cable up to the dashboard.
*Hanging fuse.
*Warning lamp 12 or 24 Volt