

# Installation Instruction

**Tail Lift**

**ZN 2500-130**

**ZN 2500-150**

ZEPRO

Tel.: +46 (0)10-459 05 00

E-mail: [zeprotech@hiab.com](mailto:zeprotech@hiab.com) | [zeapro.com](http://zeapro.com)

76510TL  
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**ZEPRO**



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# 1 Important information

## 1.1 Attention!

The following warning signs appear in the installation instructions and are intended to draw your attention to circumstances that can potentially cause problems, near misses, personal injury and/or damage to the product, etc.

**WARNING!**

WARNING indicates a potential hazard, which if ignored may lead to serious, life-threatening injury.

**CAUTION!**

CAUTION indicates a potential hazard, which if ignored, may lead to minor injuries.

**IMPORTANT!**

IMPORTANT indicates a risk of equipment damage.

**NOTE!**

*NOTE refers to additional information that may help the reader understand, or perform, a given operation.*

## 1.2 Technical support

If technical support is needed, please contact ZEPRO. Tel: +46 (0)10-459 05 04, E-mail: [zeptech@hiab.com](mailto:zeptech@hiab.com).

Always be ready to state the tail lift's production number to guarantee you receive the correct information. The production number is given on the identification plate located on the tail lift frame.



Image 1. Identification plate



## 1.8 Repainting

**IMPORTANT!**

Piston rods and cylinder covers must not be painted. Among other things, this can damage the cylinder gaskets.

Boots, hydraulic hoses and cables may not be coated/painted as the solvent in the paint can damage the hoses and cables and impair durability.

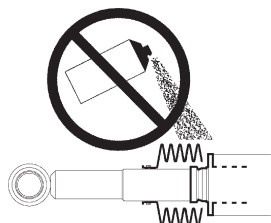


Image 2. Piston rods, cylinder covers and boots

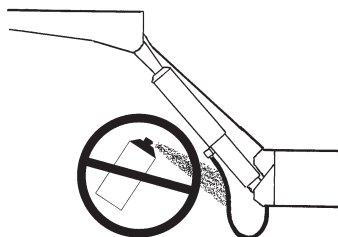


Image 3. Hydraulic hoses

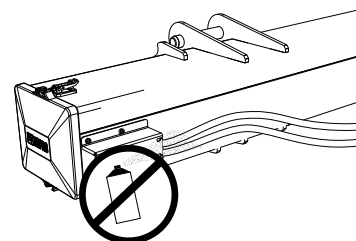


Image 4. Cables

## 1.9 Battery maintenance

When storing for longer than 1 week, it is recommended to disconnect the lift from the battery via the main switch or by releasing the lift's main fuse, in order to reduce the risk of the battery discharging. The length of time the vehicle can be stored without the battery charge level becoming too low depends on the condition of the battery, the charge level prior to storage and how much power other components in the vehicle take from the battery. After a period of storage, the battery must always be charged fully before operating the lift.

When the lift is operated repeatedly without starting or using the vehicle during lift installation or carrying out service and repairs, use the battery charger between operations to maintain battery charge.

**IMPORTANT!**

The battery charger must be disconnected when operating the lift. Risk of material damage.

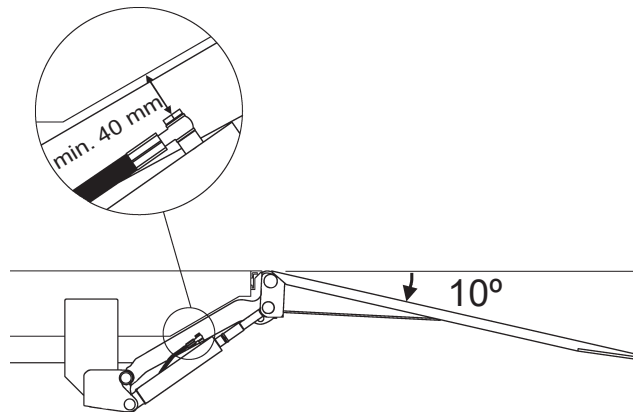
## 2 Safety rules

### 2.1 Moving parts - free movement

#### **⚠ WARNING!**

During final inspection\*, the space occupied by the moving cylinders must be cleared and made safe. There is a risk of collision between the cylinder and the following items: subframe, truck chassis, beam for rear light (number plate) and the chassis bracket of the lift (with a short overhang).

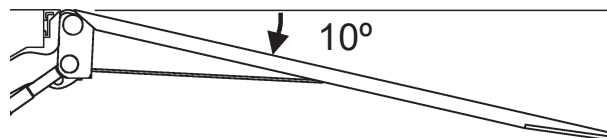
\*\*Final inspection to be carried out with the platform at the vehicle floor and tilted down 10°. The clearance from the closest part of the cylinder must be at least 40 mm.



*Image 5. Clearance to the closest part of the cylinder must be at least 40 mm*

#### **⚠ WARNING!**

The platform may not be tilted down more than 10° from the horizontal.



*Image 6. The platform may not be tilted down more than 10° from the horizontal*

### 2.2 Connection of third-party equipment is forbidden

#### **⚠ WARNING!**

Connecting third-party equipment (electric or hydraulic) to Zepro tail lifts is forbidden. Connecting third-party equipment could interfere with the lift's system and its safety functions. Risk of injury and damage. If it is necessary to install other equipment, check the vehicle manufacturer's body instructions and use the attachment features on the vehicle.

### 2.3 Installation

#### **⚠ WARNING!**

Installation where the platform cannot reach ground level is prohibited.

#### **⚠ WARNING!**

ZEPRO tail lifts are only approved for installation using ZEPRO assembly kits.

#### **IMPORTANT!**

All specified tightening torques apply when using torque wrench or screw/nut runner with torque control. Torque spread max ±5%.

### 3 Before installation

#### 3.1 Vehicle chassis requirements

In order to comply with the applicable underrun protection standards, there are requirements for the vehicle chassis on which the rear tail lift is mounted. The moment of inertia in a cross-section on the current frame beam (excluding any support frame) shall not be less than  $937 \text{ cm}^4$ . Thus the frame beam cross-section must measure at least  $220 \times 70 \times 4 \text{ mm}$ , which corresponds to a minimum moment of inertia of  $937 \text{ cm}^4$  around the x-axis. See Image 7. If in doubt, contact ZEPRO for support.

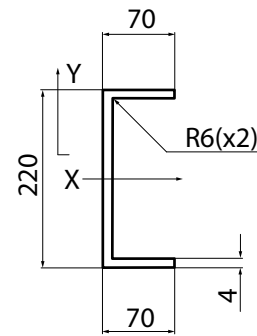


Image 7. Cross section of vehicle chassis frame beam

#### **⚠ WARNING!**

The above dimensions are the minimum permitted for the installation of underrun protection. The strength requirements for mounting the tail lift usually require larger dimensions.

#### 3.2 Statutory dimensions

Distance between the beam and the ground when the vehicle is unloaded:

- Max. 450 mm for vehicles with air suspension.
- Max. 500 mm for vehicles with conventional suspension.

If the exit angle with the above setting is less than  $8^\circ$ , the distance between beam and ground in an unladen vehicle may be increased until the angle is  $8^\circ$ , but to max 550 mm.

Horizontal distance from the outermost part of the platform to the underrun protection: Max 300 mm.

See Image 8.

#### **NOTE!!**

*The underrun protection may be located further back and lower.*

#### **NOTE!**

*The underrun protection is included in the total length of the vehicle!*

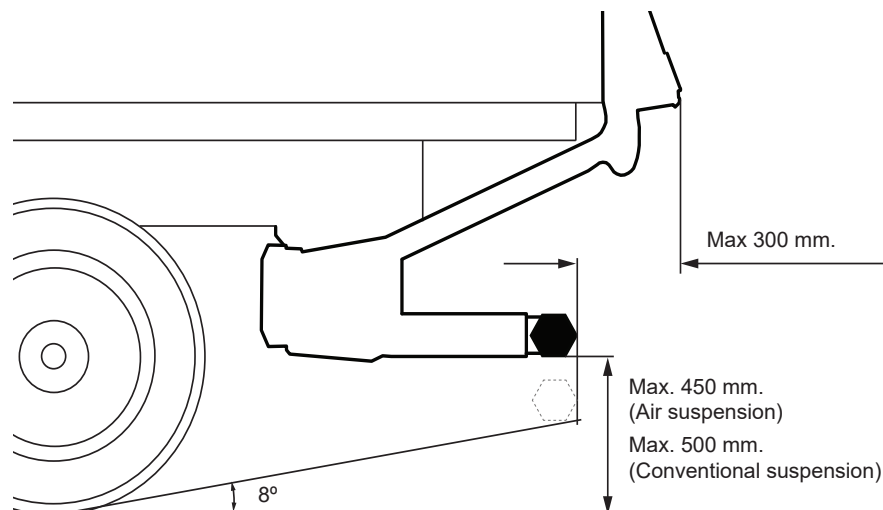


Image 8. Statutory dimensions

Horizontal distance from the outer edge of the beam to the outside of the wheel: Max. 100 mm. See Image 9.

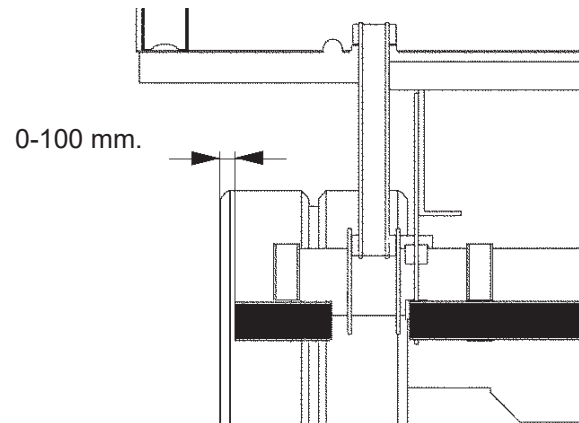


Image 9. Statutory dimensions

The lateral distance between the underrun protection and the moving parts of the tail lift must not exceed 25 mm. See Image 10.

Each of the individual parts of the underrun protection must have a surface area of at least 350 cm<sup>2</sup>. See Image 10.

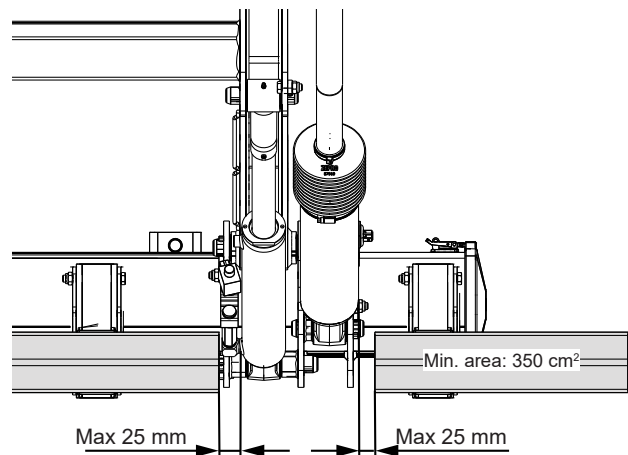


Image 10. Statutory dimensions

### **3.3 Calculating the installed dimensions**

For ease of installation it is best to calculate and specify the necessary dimensions in advance. Determine the C dimension first, then obtain the other dimensions from the relevant table. Try to place the lift as high as possible within the C dimension specified in the table.

#### **3.3.1 C dimension**

The C dimension is the distance between the top of the support frame and the vehicle floor level. This dimension determines the space the lift needs beneath the body (dimension D) and the distance from the lift arms in their upper position to vehicle floor level (dimension A).

#### **3.3.2 D dimension**

The D dimension is the space the lift needs, measured from the rear edge of the body to the front edge of the support frame (in the direction of the vehicle). Once the C dimension is determined, the D dimension can be obtained from the table.

#### **3.3.3 A dimension**

The A dimension is the space provided for the rear member, i.e. the space there will be between the 1st boom and the vehicle floor with the lift in the raised position. The A dimension depends on the C dimension

#### **3.3.4 H dimension**

The H dimension is the height from the ground (unloaded) to the vehicle floor level. The H dimension must not be greater than the maximum lifting height of the lift. The lift platform must always be able to reach ground level.

3.4 Installed dimensions ZN 2500 - 150

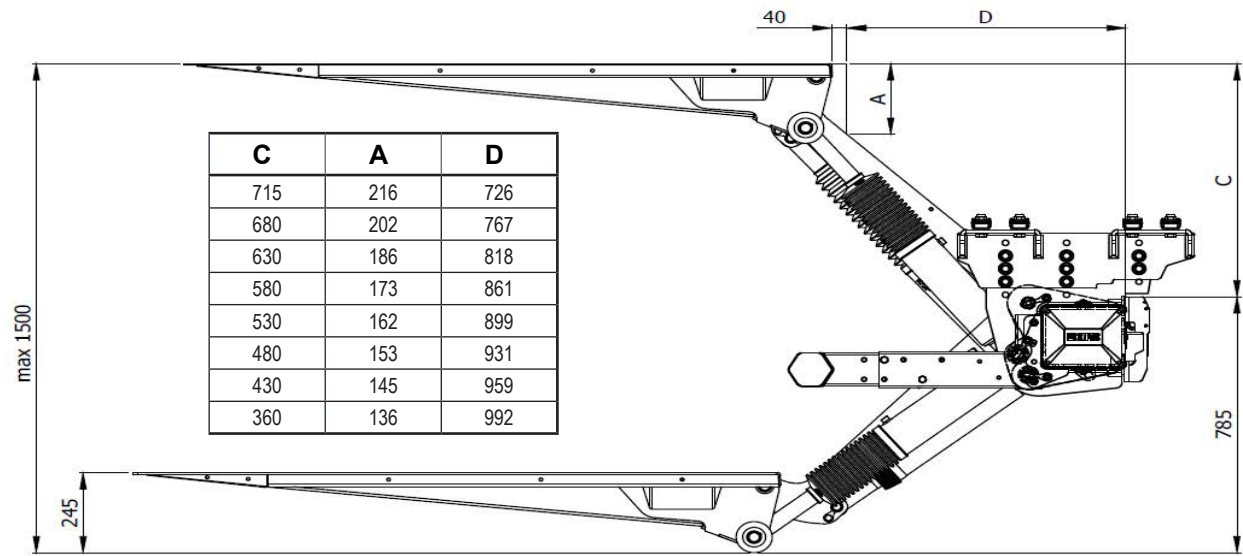


Image 11. Installed dimensions

3.5 Installed dimensions ZN 2500 - 130

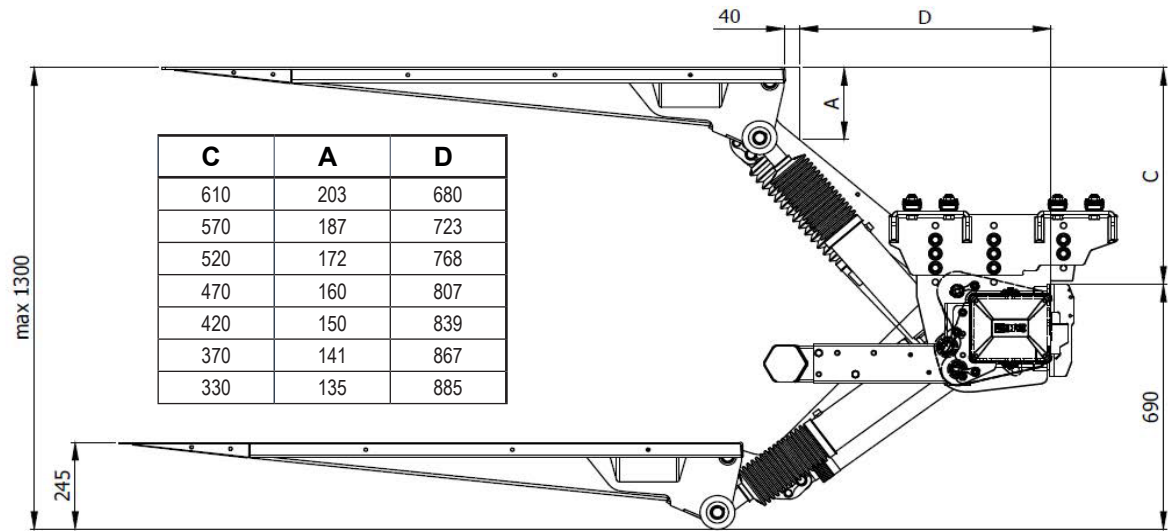


Image 12. Installed dimensions



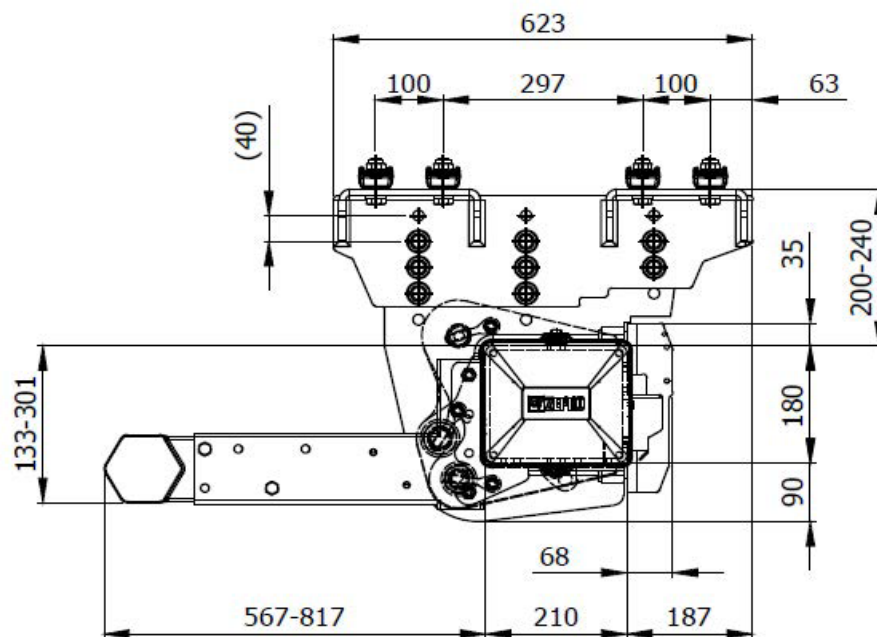


Image 13. Installed dimensions

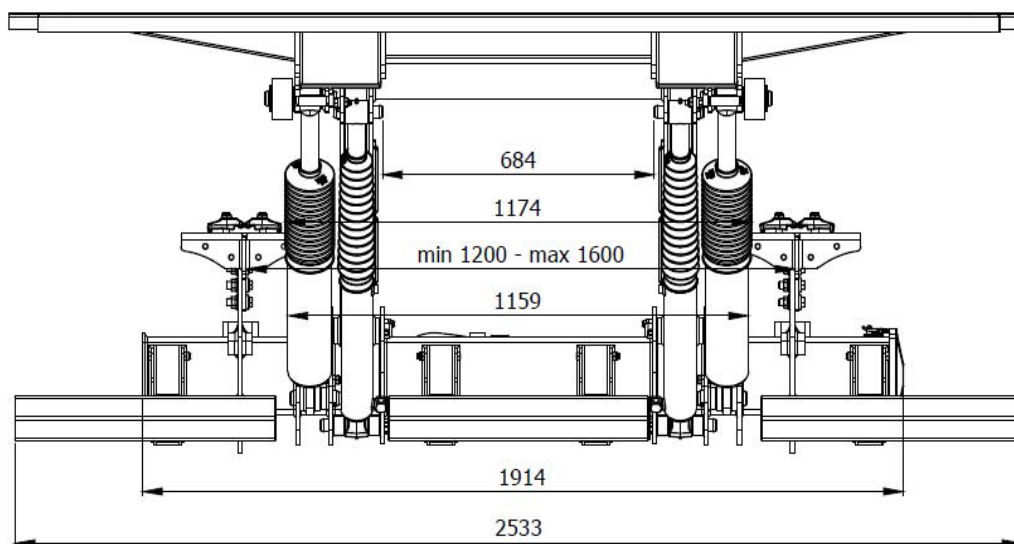


Image 14. Installed dimensions

**NOTE!**

The underrun protection is included in the total length of the vehicle!

### 3.6 Rear beam cut-outs

It is often necessary to create cut outs in the rear beam to provide space for the platform arms when the platform is in the upper position. The size of the cut outs depends on the calculated installed dimension "A", see illustration below.

1. Measure and mark the location and depth of the cut outs on the rear beam. The two cut outs must be centred on the rear beam, i.e. both cut outs must be an equal distance from the mid-point of the beam.
2. Cut along the markings.
3. Grind away any burrs or sharp edges.

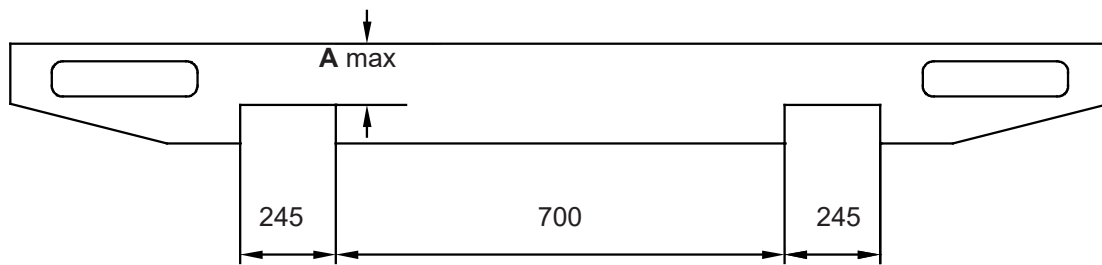


Image 15. Rear beam cut-outs

### 3.7 Adjusting the chassis brackets

The chassis brackets can be set to two different heights. This affects the distance between the lift frame and the chassis (202 mm/242 mm). Take this into account when calculating the C dimension. The brackets must also be fitted differently depending on the chassis width, see the description below.

#### 3.7.1 Adjustment

1. Undo the 8 bolts and nuts holding the two parts of the bracket together, see illustration below.
2. Fit the two parts of the brackets in the correct position with the eight bolts and nuts.

**NOTE!**

*If the chassis width is 1300 mm or more, fit the lower part to the inside (B) of the upper part, see illustration below. If the chassis is narrower than 1300 mm, fit the lower part to the outside (A) of the upper part, see illustration below.*

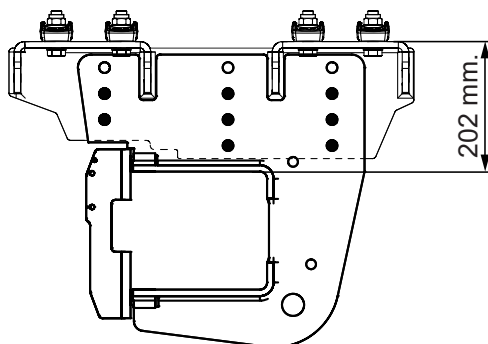
3. Tighten the bolts using a torque wrench. **Tightening torque: 180 Nm.**



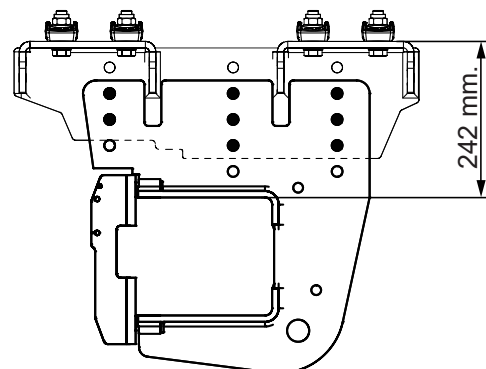
**WARNING!**

The parts must always be installed with eight screws – two in the front row of holes and three each in the middle and rear rows of holes.

**Position 1**



**Position 2**



**Chassis width**

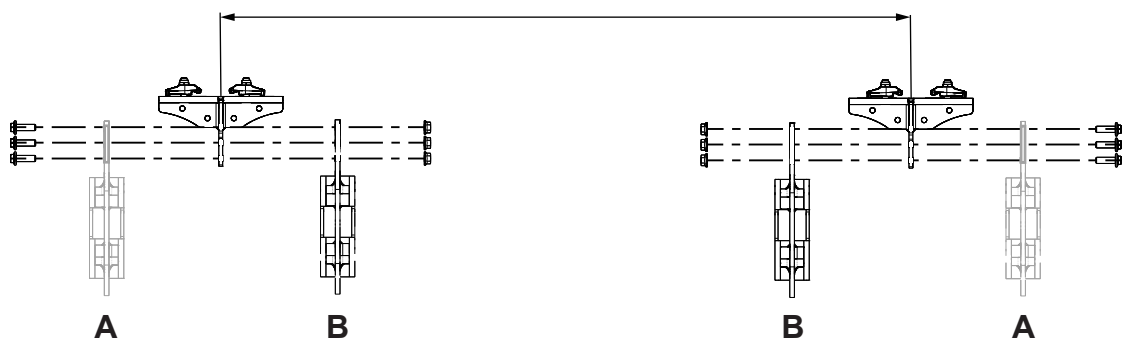


Image 16. Adjusting the chassis brackets

### 3.8 Temporary connection

When the tail lift is installed, it is sometimes necessary to operate its functions in order to change the position of the cylinders and the lift arms. Temporarily connect the lift to enable the lift functions.

1. If the actuator is not connected, connect a suitable control device to Ctrl 1/C1, see section 3.8.2/3.8.3.
2. Connect the tail lift's main power cable to battery +12/24V.
3. Connect the negative battery terminal to the tail lift's earth cable (GND).
- 4a. On lifts with a connected cab circuit breaker (CS), ensure it is in the ON position
- 4b. On lifts without a connected cab circuit breaker (CS), follow the respective procedure:

Relay card TLC-B1: When operating, connect a cable (jumper) between an available power supply connection (+) and CS on the relay card to simulate switch CS being on. Remove the cable immediately after completed operation.

Control card ZePRO1: When operating, connect the cable (jumper) between the CSPWR and CS on the control card to simulate that the CS switch is turned on. Remove the jumper immediately after completed operation.

#### **! WARNING!**

Take great care while running the lift functions and make sure nothing gets pinched: risk of personal injury and material damage.

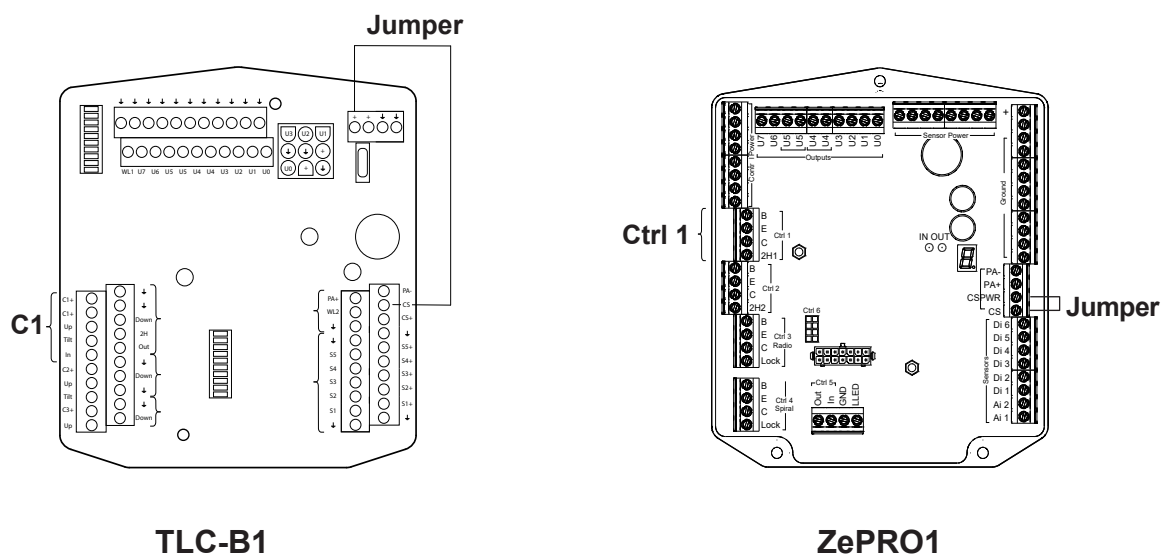


Image 17. Temporary connection

#### 3.8.1 Battery maintenance

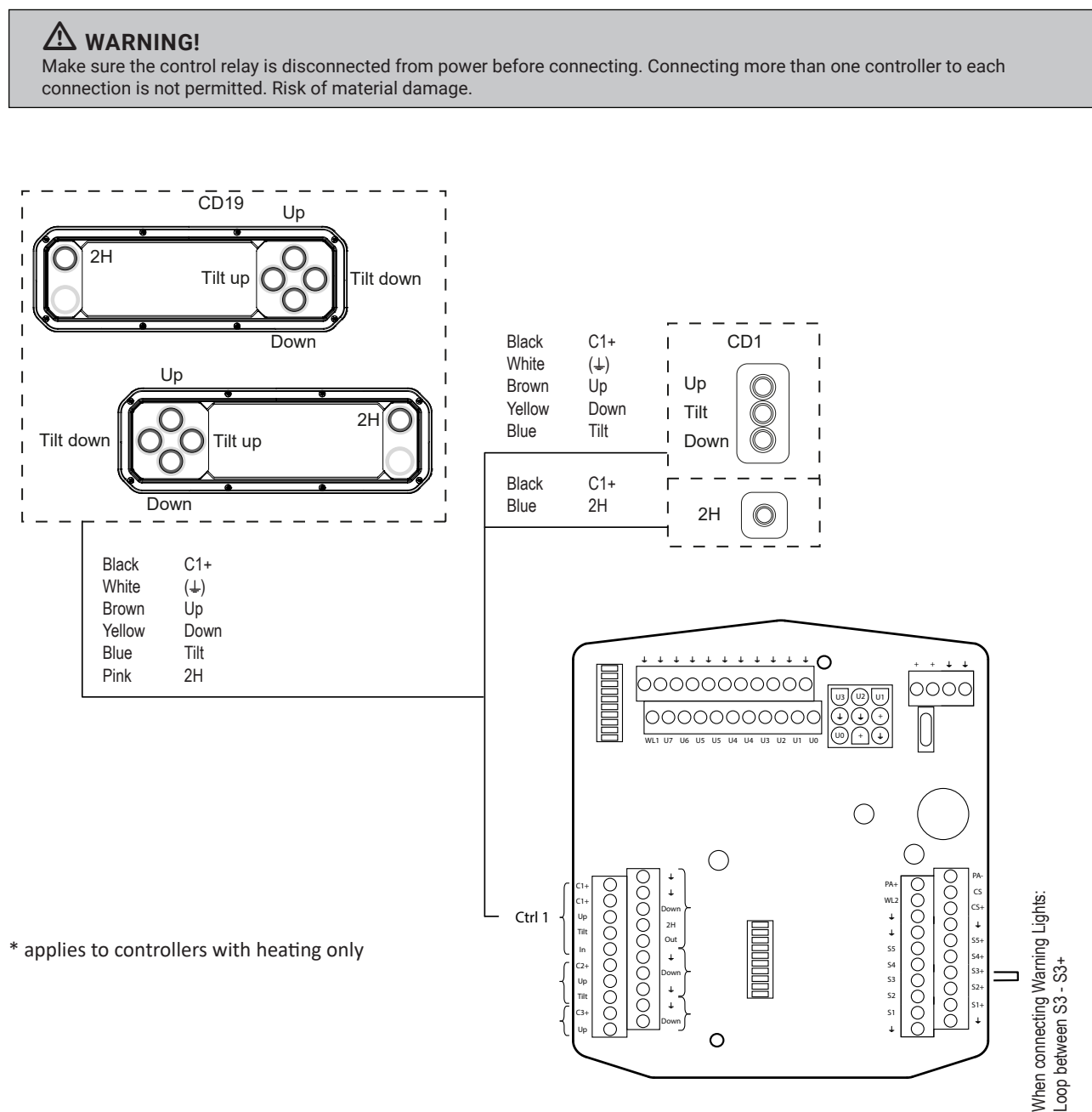
When installing the lift, when the lift is operated repeatedly, the battery charger must be used between operations to maintain the battery charge level.

#### **IMPORTANT!**

The battery charger must not be connected when operating the lift. Risk of material damage.

### 3.8.2 Connecting the control device to the TLC-B1 relay card

The connection of warning lights and the most commonly occurring controller (CD (Control Device)) models is shown below. Possible controller models vary depending on lift model, configuration and relevant market.

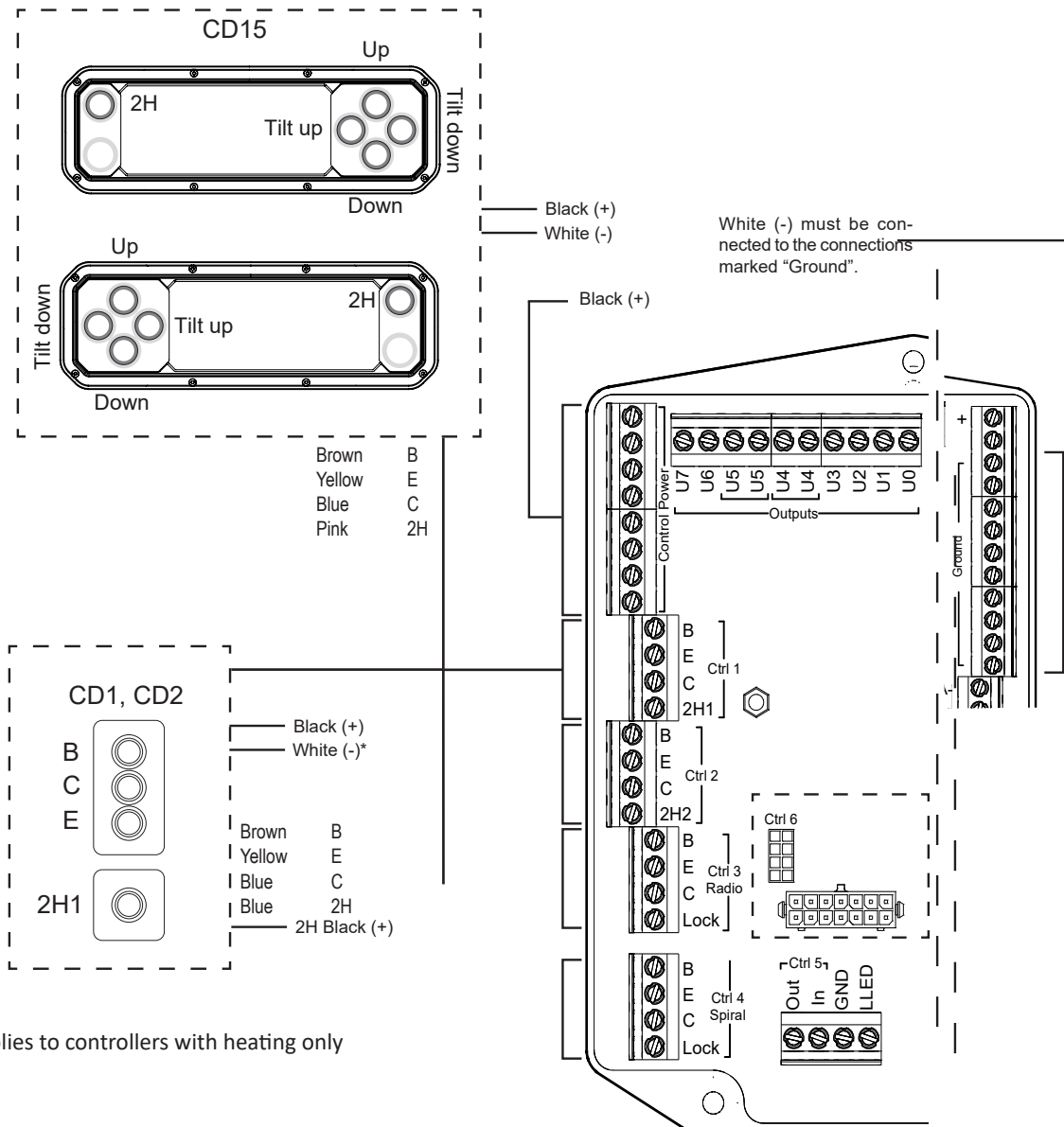


### 3.8.3 Connecting the control device to the ZePRO1 control card

The most commonly occurring controller (CD Control Device) models are shown below. Possible controller models vary depending on lift model, configuration and relevant market.

#### **⚠ WARNING!**

Make sure that the control card is disconnected from the power before connecting. Connecting more than one controller to each connection is not permitted. Risk of material damage.



\* applies to controllers with heating only

### 3.9 Prepare the tail lift

1. Position the support frame under the vehicle's chassis.
2. Remove the protective cover mounted with a rubber strap; see Image 18.
3. Fold out the control card / relay card (B) and loosen the cabling at the connector on the hydraulic unit; see Image 19 and Image 20.
4. Release the hydraulic unit by unscrewing the wing nut and corresponding screw (C); see Image 21 and pull out the hydraulic unit until the tank cap is accessible; see Image 22.

#### **⚠ CAUTION!**

Make sure no cables are pinched or in any other way damaged when the control card / relay card is folded out or removed. Do not pull out the hydraulic unit more than necessary; make sure it is not pulled completely out of the frame, as this can entail a risk of injury and damage to the equipment.

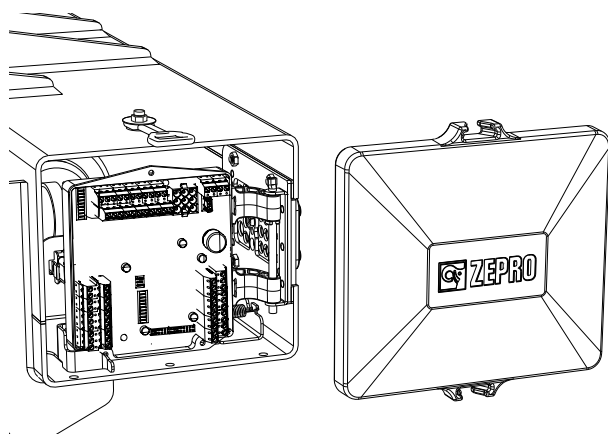


Image 18. Remove the protective cap

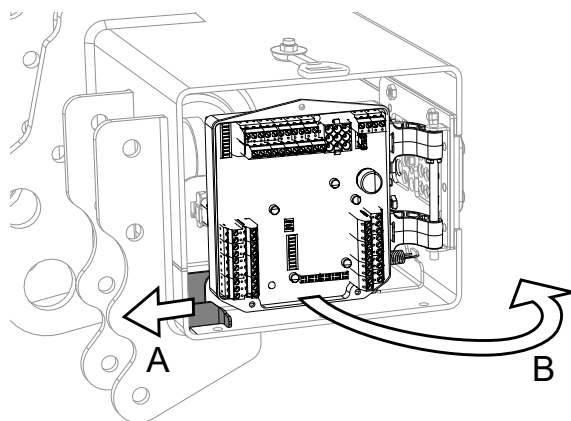


Image 19. Release mechanism

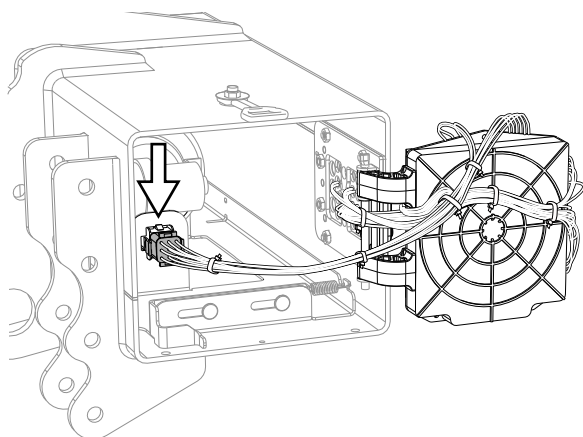


Image 20. Connection socket

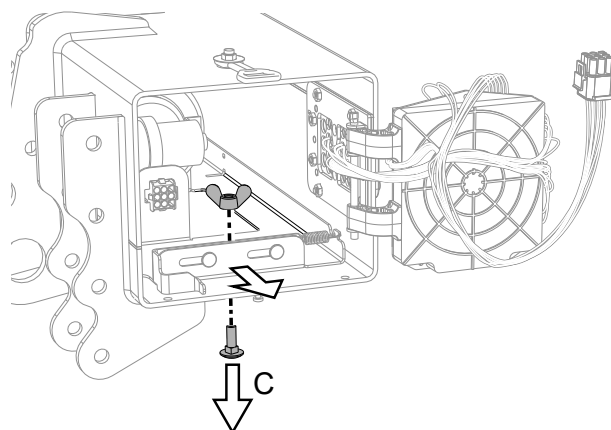
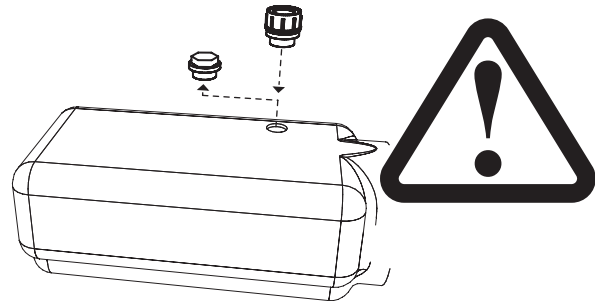
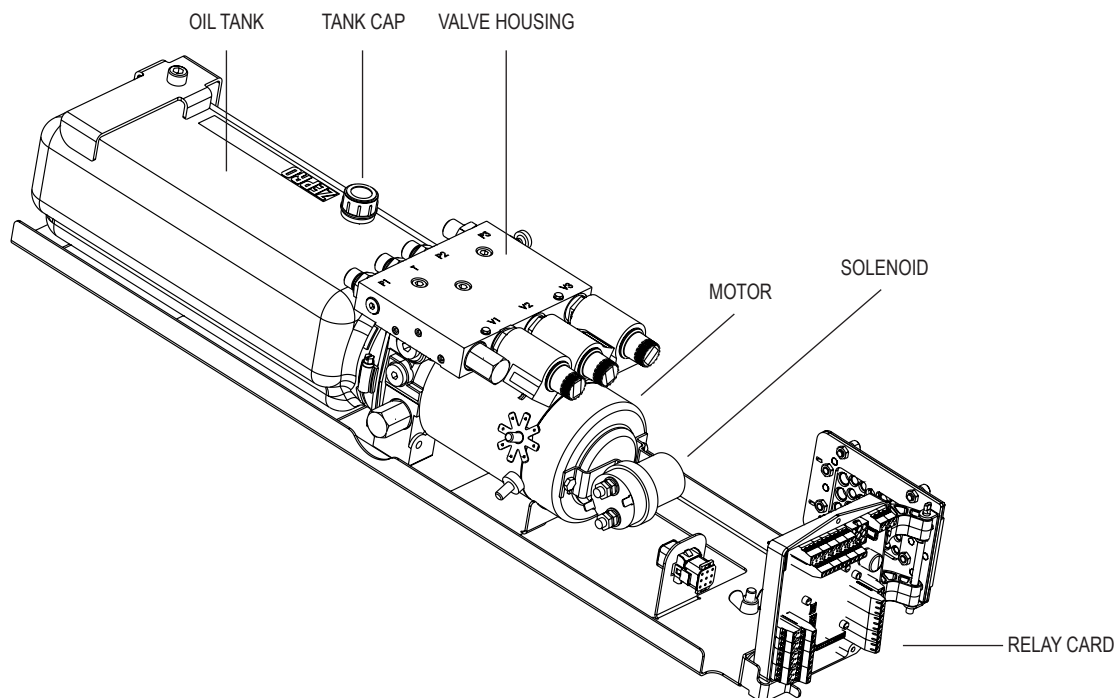


Image 21. Releasing the hydraulic unit

5. Check whether the hydraulic tank is fitted with a transport plug seal. If so, replace it with the regular tank cap supplied.



*Image 22. Where necessary, replace the transport plug with a regular tank cap*



*Image 23. Hydraulic unit and relay card*



## 4 Installation

### NOTE!

Consult the trailer manufacturer's body instructions and Zepro's instruction booklet before installation.



### WARNING!

Zepro tail lifts are only approved for installation with Zepro installation kits.

### 4.1 Chassis bracket

1. Place the chassis brackets on the support frame.
2. Adjust the distance between the brackets according to the chassis width and centre the frame so that the distance from the end of the frame to the bracket is the same on the left and the right.
3. Attach the clamp on the rear of the chassis bracket using the supplied washers and nuts.
4. Tighten the bolts using a torque wrench. **Tightening torque: 260 Nm.**

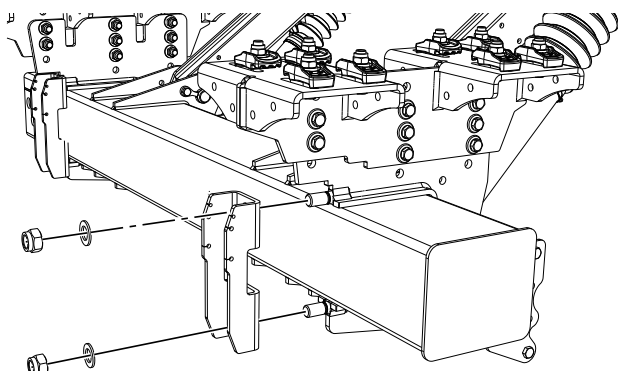


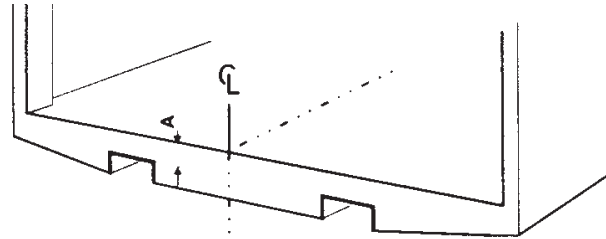
Image 24. Fitting the chassis bracket

## 4.2 Support frame, trailer

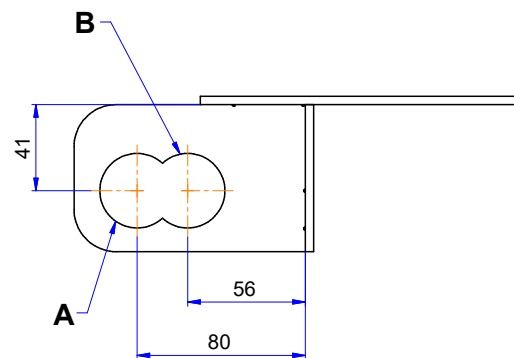
### NOTE!

*In cases where assembly jigs cannot be used due to, for example, locking devices, go directly to step 3.*

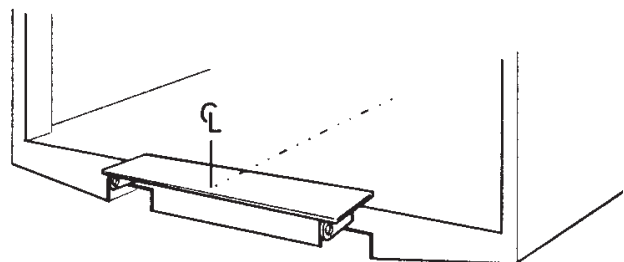
1. Measure and mark the midpoint of the rear beam of the trailer. See illustration.
2. Bolt or spot-weld the mounting jig (product no. 78183TL) to the rear beam so that both mid-points match. See Image 25.
3. Position the support frame under the trailer chassis.
4. Temporarily connect the control card to enable the lift functions, see section "3.8 Temporary connection" on page 16.
5. Raise the lift arms to their highest position.
6. Attach the 1st booms to the lugs on the jig. Use position A if the platform is equipped with mud-guard, otherwise position B. See Image 26. Use the steel platform's normal pivots. In cases where assembly jigs cannot be used, measure the corresponding distance between the 1st boom and the bed, see Image 26.



*Image 25. Measure and mark the midpoint of the rear beam of the trailer*



*Image 26. Mounting options*



*Image 27. Bolt or spot-weld the mounting jig to the rear beam*

7. The support frame should be positioned as high as possible within the specified C dimension. Adjust the frame to the ideal height under the chassis. Use the lift's packaging and a forklift. If necessary you can adjust the height of the bracket by installing its upper and lower parts in an alternative pattern of holes. See section "3.7 Adjusting the chassis brackets" on page 15. If necessary adjust the angle of the arms by carefully operating the lift.
8. Fit the support frame to the trailer chassis using the clamps. See illustration below. Tighten the bolts using a torque wrench. **Tightening torque: 180 Nm.**

**NOTE!**

*Welding is not permitted on the chassis brackets.*

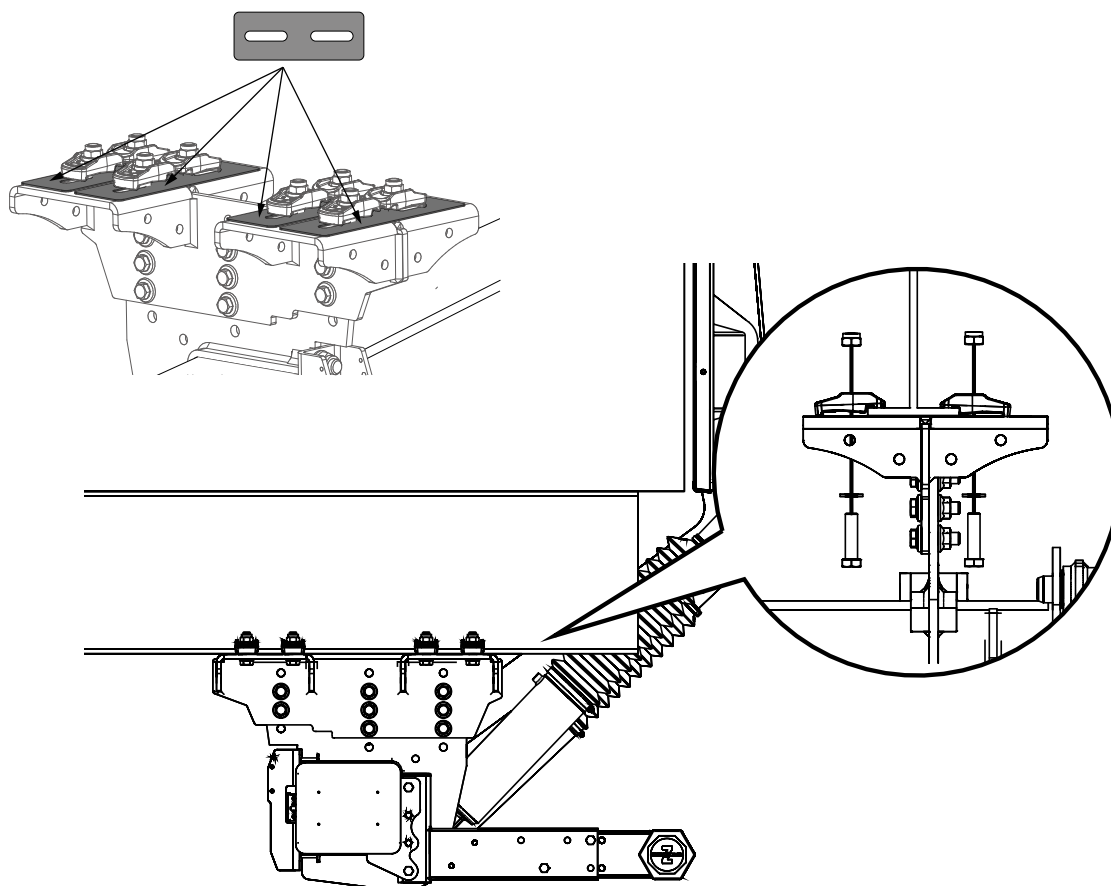
*Do not move the lift all the way to the armstops or with the platform fitted before all the bolts are fully tightened against the chassis.*

*Do not place the lift under load until all bolts are tightened.*

9. Remove the mounting jig.

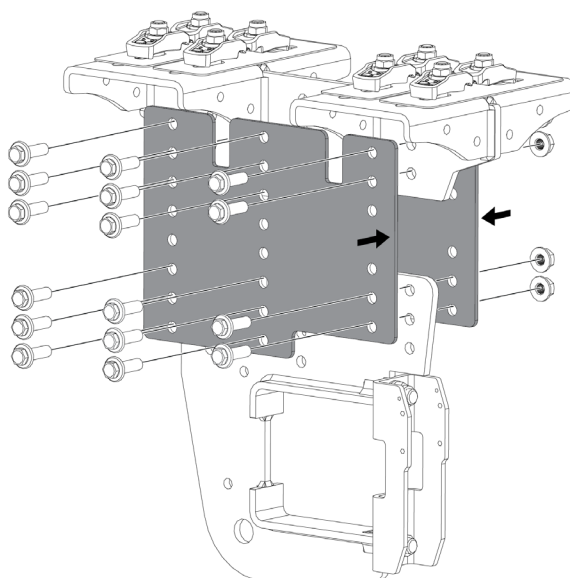
**WARNING!**

The friction plates are an important part of the underrun protection and must therefore always be installed between the brackets and the vehicle's chassis beams.



*Image 28. Fit the support frame to the trailer chassis using the clamps*

10. If necessary, the height of the brackets can be adjusted by installing extension plates.



*Image 29. Extension kit (55621TL)*

### 4.3 Support frame, truck

1. Measure and mark the midpoint of the rear beam of the vehicle. See Image 30.
2. Bolt or spot-weld the mounting jig (product no. 78183TL) to the rear beam, so that both mid-points are aligned.
3. Position the support frame under the vehicle chassis.
4. Temporarily connect the control card to enable the lift functions, see section "3.8 Temporary connection" on page 16.
5. Raise the lift arms to the highest position.
6. Attach the 1st booms to the lugs on the jig. Use position A if the platform is equipped with mudguard, otherwise position B. See Image 31. Use the steel platform's normal pivots. In cases where assembly jigs cannot be used, measure the corresponding distance between the 1st boom and the bed, see Image 31.
7. The support frame should be positioned as high as possible within the specified C dimension. Adjust the frame to the ideal height under the chassis. Use the lift's packaging and a forklift, See Image 32 The frame must be positioned parallel with the floor of the vehicle body and must not be in contact with the vehicle chassis; there must be a few millimetres of play. If necessary adjust the angle of the arms by carefully operating the lift.
8. Install the brackets on the support frame so that its opening is facing towards the front of the vehicle, and adjust the position of the frame so they are in contact with the vehicle chassis.
9. Install the U-profile with associated washers and nuts, but do not tighten these. Screw on the nuts alternately until the U-profile is aligned in contact with the frame, see Image 33.

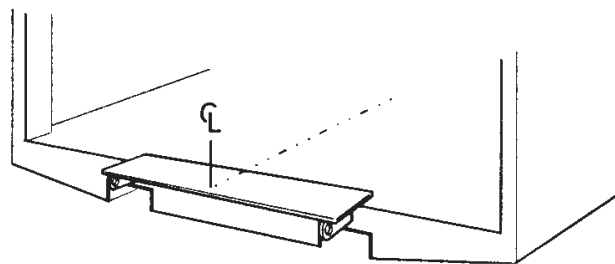


Image 30. Measure and mark the midpoint of the rear beam of the vehicle. Bolt or spot-weld the mounting jig to the rear beam

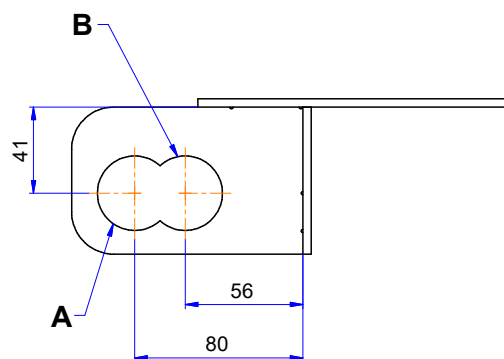


Image 31. Mounting options

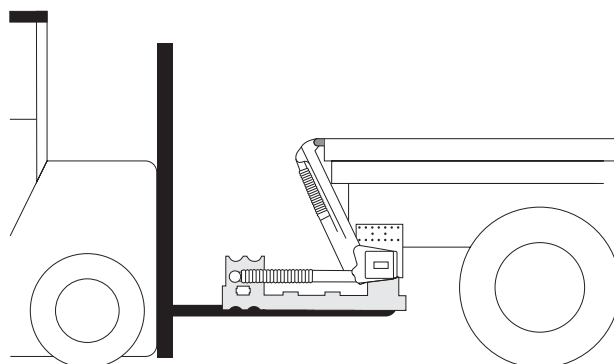


Image 32. Use the lift's packaging and a forklift

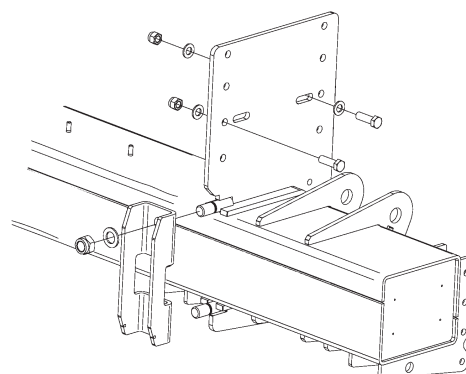


Image 33. Install the U-profile with associated washers and nuts

**When installing on chassis with pre-drilled holes, go directly to point 16.**

10. When installing on a frame without pre-drilled holes, install first with a screw in the brackets' slot-shaped holes. On the vehicle chassis, mark the middle of the brackets' slot-shaped holes and then drill  $\varnothing 14$  mm holes in the frame, see Image 35.
11. Bolt the brackets securely on the outside of the vehicle chassis. Use M14x45 bolts and install the associated washer and nut on the inside of the vehicle chassis. Install the bolts but do not tighten.
12. Check and perform fine adjustment regarding the position of the lift. Then tighten the bolts with a torque wrench. **Tightening torque: 120 Nm.**
13. Using a torque wrench, tighten the bolts holding the U-profiles. **Tightening torque: 280 Nm.**
14. Drill holes in the vehicle chassis for mounting bolts,  $\varnothing 14$  mm. Drill in the outer holes of each bracket. Use M14x45 bolts and install the associated washer and nut on the inside of the vehicle chassis. Installation must be performed with at least 6 bolts in the outer holes. The bolt that was installed initially in the slot-shaped hole may not be included in this figure. If necessary, this bolt can now be moved to one of the outer holes, see illustration. Then tighten the bolts with a torque wrench. **Tightening torque: 120 Nm.**

**NOTE!**

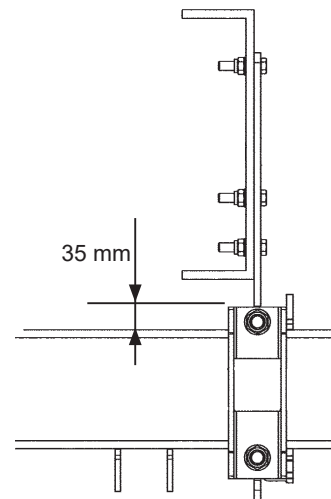
*Welding is not permitted on the chassis brackets.*

*Do not move the lift all the way to the armstops or with the platform fitted before all the bolts are fully tightened against the chassis.*

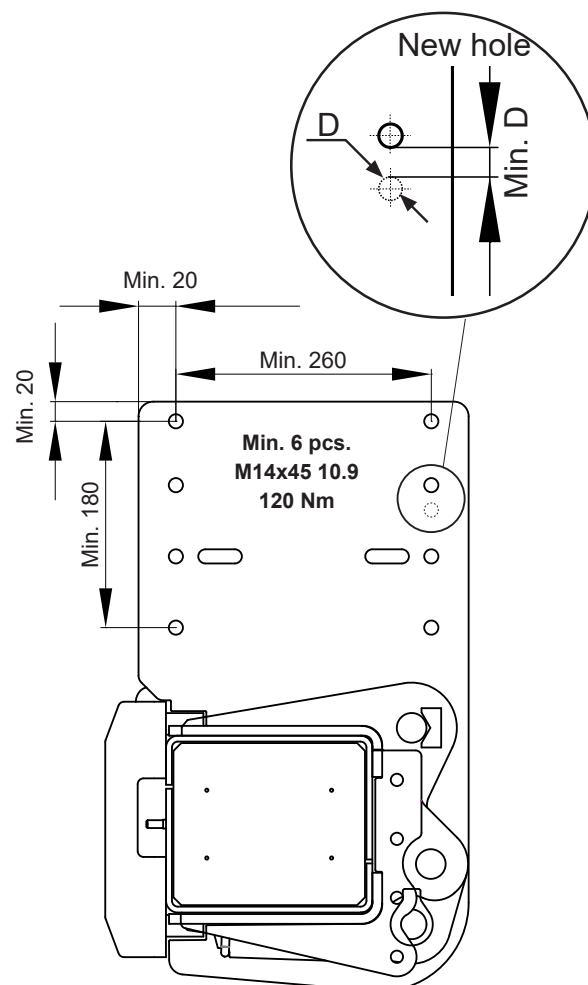
*Do not place the lift under load until:*

- *the correct number of bolts have been installed and torque-tightened.*
- *the vehicle body is installed to reinforce the truck chassis.*

15. Remove the mounting jig.



*Image 34. The chassis bracket requires at least 35 mm clearance between vehicle chassis and support frame*



*Image 35. Install the chassis bracket with at least six M14x45 10.9 bolts*

### When installing on chassis with pre-drilled holes

16. Bolt the brackets securely on the outside of the vehicle chassis. Install in the slot-shaped holes with at least 6 screws. Use suitable bolts (durability equivalent to M14 10.9 or higher) and install the associated washer and nut on the inside of the vehicle chassis. Install the bolts but do not tighten. See Image 36.
17. Check and perform fine adjustment regarding the position of the lift. Then tighten the bolts with a torque wrench. **Tightening torque: Standard for selected screw.**
18. Using a torque wrench, tighten the bolts holding the U-profiles. **Tightening torque: 280 Nm.**
19. Drill holes in the vehicle chassis for mounting bolts in each bracket's two upper round holes. Use suitable bolts (durability equivalent to M14 10.9 or higher) and install the associated washer and nut on the inside of the vehicle chassis. See Image 36. Tighten the bolts with a torque wrench. **Tightening torque: Standard for selected screw.**

#### **NOTE!**

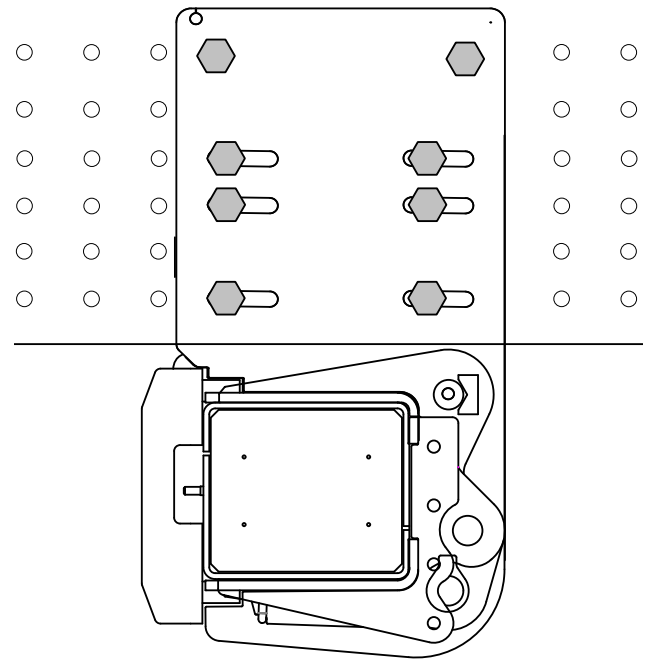
*Welding is not permitted on the chassis brackets.*

*Do not move the lift all the way to the armstops or with the platform fitted before all the bolts are fully tightened against the chassis.*

*Do not place the lift under load until:*

- *the correct number of bolts have been installed and torque-tightened.*
- *the vehicle body is installed to reinforce the truck chassis.*

20. Remove the mounting jig.



*Image 36. Installing the chassis bracket on vehicle chassis with pre-drilled holes*

#### 4.4 Platform

1. Check that all included components are clean, cleaning them where necessary.
2. Lubricate the metal bushings on the upper bearing of the arms. Ensure that the small holes on the inside of the bushings are filled with grease. See Image 37. Use Zepro lubricant or the equivalent.

**NOTE!**

Carefully lubricate the metal bushings on the upper bearing of the arms. Ensure that the small holes on the inside of the bushings are filled with grease. After the platform is fitted, lubricate all bearings via normal grease nipples, see section "16 Lubrication and fluid level check" on page <?>..

3. Fit the platform to the arms using the supplied shafts and screws. Tighten the bolts using a torque wrench. **Tightening torque: 80 Nm.**

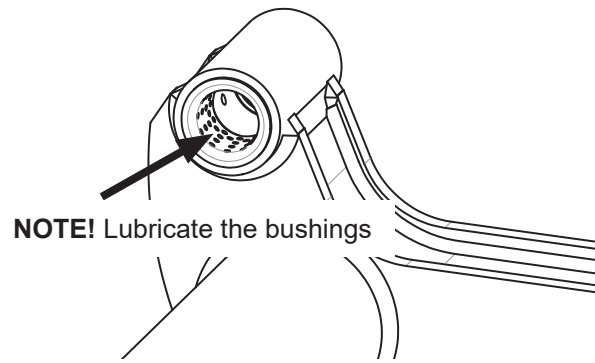


Image 37. Carefully lubricate the metal bushings

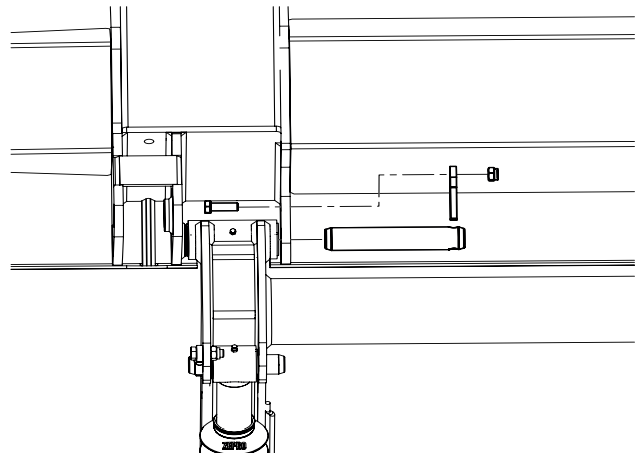


Image 38. Fitting the platform to the arms

4. Fit one of the tilt cylinders to the platform. Use the supplied shaft and support wheel.

**NOTE!**

Make sure the cylinders are installed with the grease nipples facing up.

Tighten the bolts using a torque wrench.  
**Tightening torque: 80 Nm.**

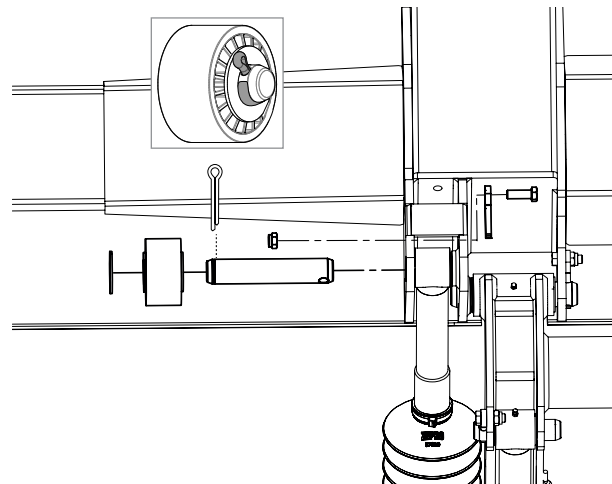


Image 39. Fitting the tilt cylinder to the platform



5. Test the lift by carefully raising it to the vehicle floor level and tilting it to the vertical position. Check the position in relation to the rear beam and side posts of the vehicle. See Image 40.

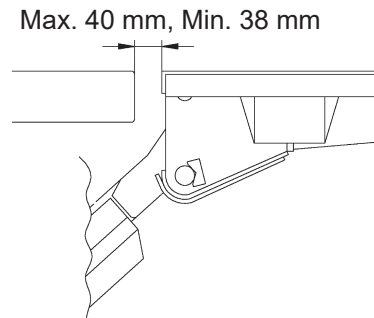
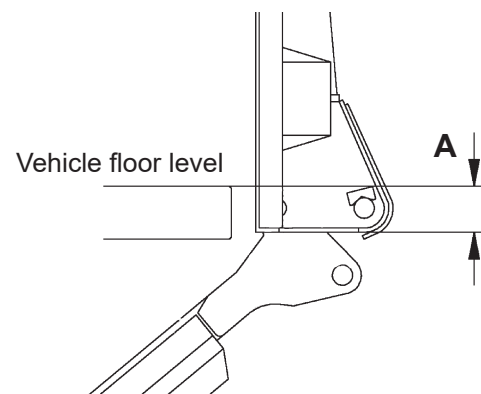


Image 40. Check the position in relation to the rear beam of the vehicle



Type	Steel	Flat 40 mm	
A (mm)	70	81	

Image 41. The platform underhang (A) varies according to platform type, and this should be taken into account when fitting the upper seal.

#### 4.4.1 Adjusting the tilt angle

##### NOTE!

Do not adjust the cylinders before they are fitted to the platform. The tilt cylinders are preset from the factory.

1. Loosen the rubber bellows at the bottom where they are secured with hose clips.
2. Tilt up and move both tilt cylinders all the way up.

##### NOTE!

Adjustment must always take place with full hydraulic pressure in the tilt cylinders.

3. Loosen the three lock screws on the other tilt cylinder. See Image 44.

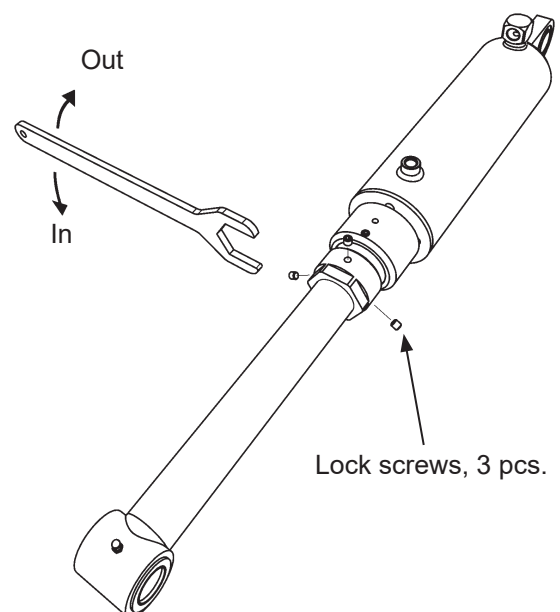


Image 42. Adjusting the tilt angle

4. Turn the adjusting collar so that the tilt cylinder aligns with the attachment on the platform. See Image 44.

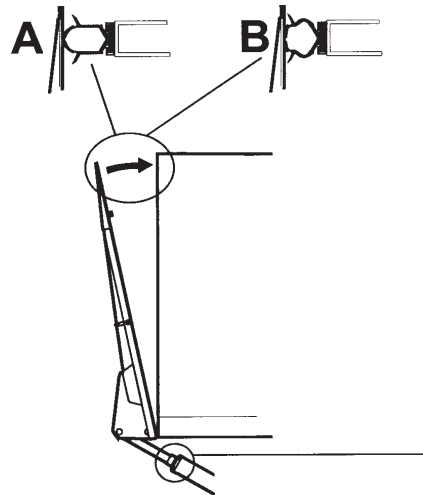


Image 43. Adjusting the fit with the vehicle body.

5. Loosen the three lock screws on the other tilt cylinder, see Image 44
6. Turn the adjusting collar so that the tilt cylinder aligns with the attachment on the platform. See Image 45.



**WARNING!**

The max. length of both cylinders must be adjusted equally to avoid unwanted breakout forces.

7. Fit the other tilt cylinder to the platform mounting. Use the supplied shaft and support wheel.

**NOTE!**

Make sure the cylinders are installed with the grease nipples facing up.

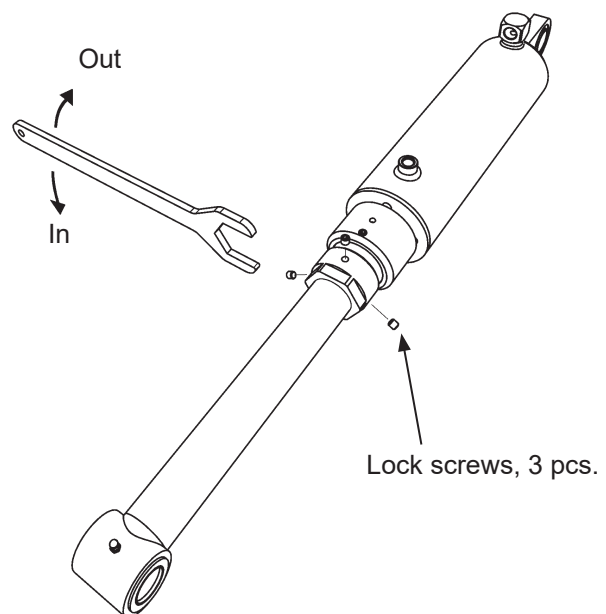


Image 44. Adjusting the tilt angle

8. Tighten the bolts using a torque wrench. Tightening torque: 80 Nm.
9. Adjust the two cylinders alternately so that the platform meets the vehicle body, see Image 43 (B).
10. Tighten the lock screws of the adjusting collar using a torque wrench. **Tightening torque: 3-5 Nm.**

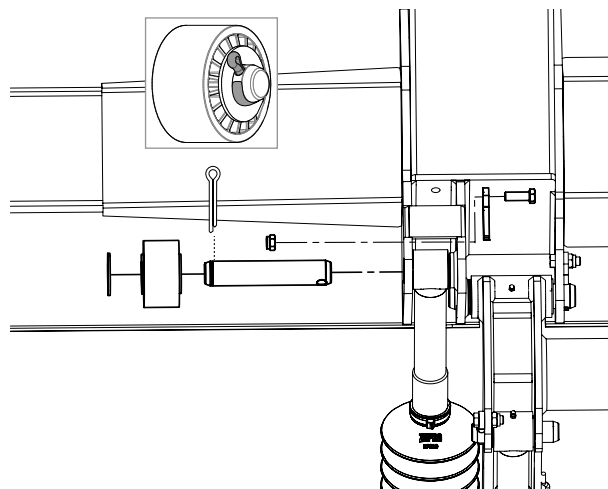


Image 45. Fitting the tilt cylinder to the platform

**WARNING!**

After finishing the adjustment, make sure the distance between the adjusting collar and the end of the thread is no more than 30 mm..

11. Fit the cylinder boots. Image 47.

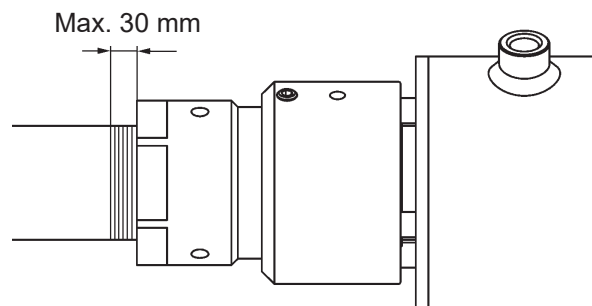


Image 46. Adjusting the tilt angle

Lift model	A
2500-130	142 ±5
2500-150	252 ±5

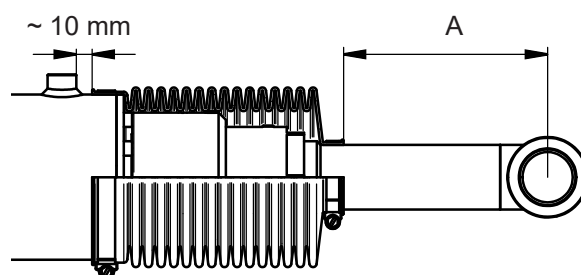


Image 47. Installing boots

#### 4.4.2 Adjusting the downward tilt angle

##### **NOTE!**

The tilt angle must be set at 90° to the vehicle body before the downward tilt angle is adjusted (see previous page).

##### **⚠ WARNING!**

To ensure that the lift is safe and CE compliant, the downward tilt angle must be adjusted to max. 10° if there are going to be people on the platform.

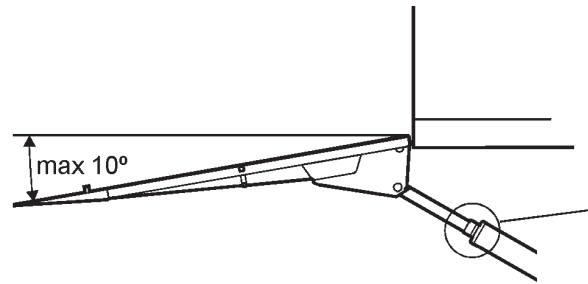


Image 48. The tilt angle must be adjusted to max. 10° down

1. Raise the lift to the vehicle floor.
2. Loosen the lock screw of the end stop (2). Screw the end stop all the way back towards the platform (3). Image 49.
3. Tilt the platform down to max. 10° below the horizontal. Image 48.
4. Adjust the end stop all the way to the top of the cylinder (4). Image 49.
5. Tighten the lock screw in the end stop (5). See Image 49.

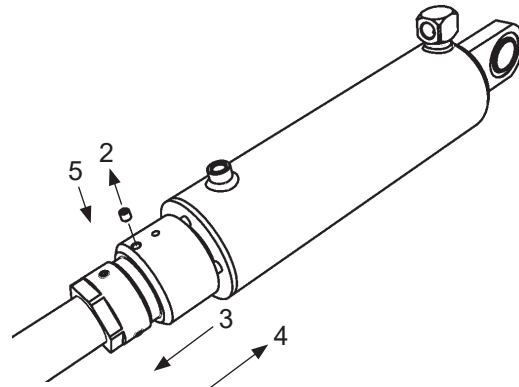


Image 49. End stop with lock screw

The tightening torque for lock screws is between 3-5 Nm

Test all functions.

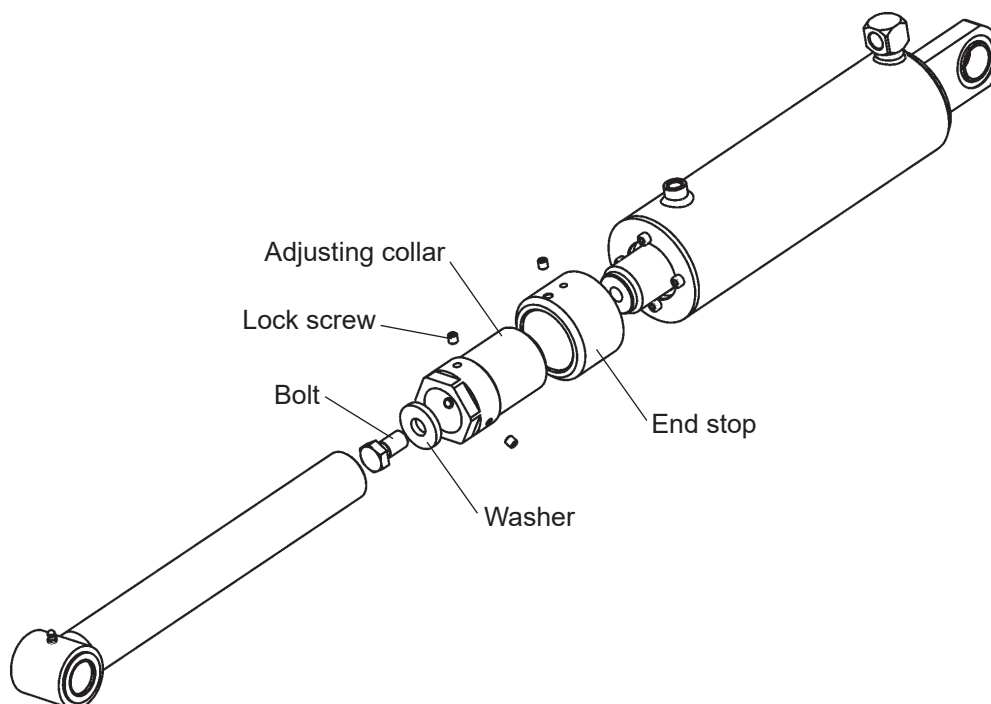


Image 50. Tilt cylinder

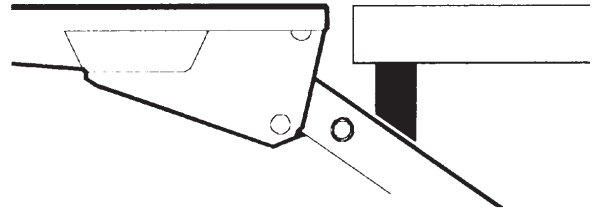
## 4.5 Armstops

Fit end stops between the lift arms and the rear member of the vehicle floor. The left and right end stops must be reached at the same time, as high up the lift arm as possible. Installation must take place against the vehicle body.



### **WARNING!**

It is not permitted to perform welding in the lift arm. Installation must take place against the vehicle body.



*Image 51. Fit end stops between the lift arms and the rear beam of the vehicle floor*

## 4.6 Sealing strip (horizontal)

The track is fitted using the self-tapping screws provided.

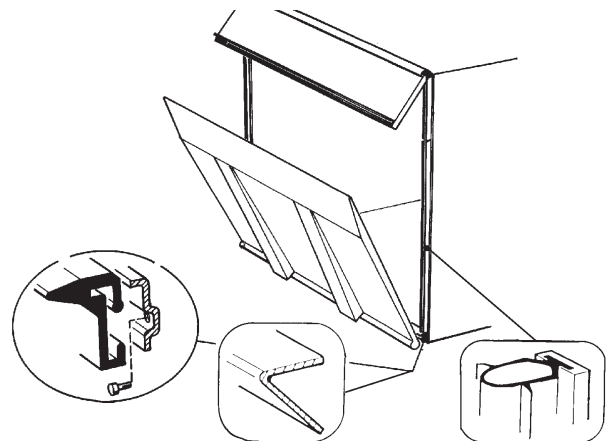
1. Mark where to drill holes for the self-tapping screws.
2. Drill holes (Ø 7.2 mm) for the screws.
3. Fit the horizontal stop strip (steel or aluminium).
4. Fit the rubber strip to the track.

## 4.7 Sealing strip (vertical)

1. Fit the tracks with countersunk screws, rivets or by spot welding.
2. Fit the rubber strip to the track.
3. Secure the rubber strips by swaging the tracks together at the bottom.

### **NOTE!**

*To fit an upper edge seal, create a 45° mitre against the vertical strips.*



*Image 52. Installing a sealing strip*

## 4.8 Underrun protection

Test the position of the underrun protection without tightening the bolts to check that the statutory dimensions are obtained. Adjust if necessary then tighten the bolts with a torque wrench.

1. Fit the inner part of each bracket at one of four heights. Select the height that meets the statutory requirements, see section "3.2 Statutory dimensions" on page 9. Use the correct bolts M12x100. Assemble without tightening the bolts, see Image 53.
2. Fit the outer part of each bracket at one of five positions. Select a position that meets the statutory requirements, see section "3.2 Statutory dimensions" on page 9.



### WARNING!

Check carefully that there is no risk of the outer part of each bracket colliding with any part of the cylinders when using the lift's functions. In particular, check in relation to the cylinders' hose connections, especially when the outer part of the brackets is installed a long way in.

Use the correct bolts M12x80. Assemble without tightening the bolts. See Image 54.

3. Check that the installation meets the statutory requirements.
4. Tighten all the bolts using a torque wrench.  
**Tightening torque: 80 Nm.**
5. Fit the beam end caps, rotated so the logo is the right way up, and press them firmly to secure. If necessary, tap carefully with a rubber hammer.

### NOTE!

The underrun protection is included in the total length of the vehicle!

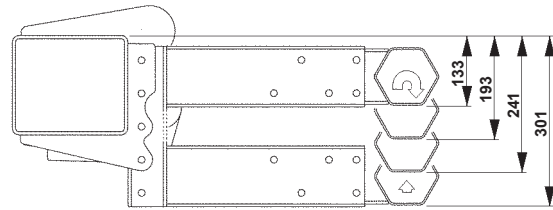


Image 53. The inner part of the brackets can be fitted at one of four heights

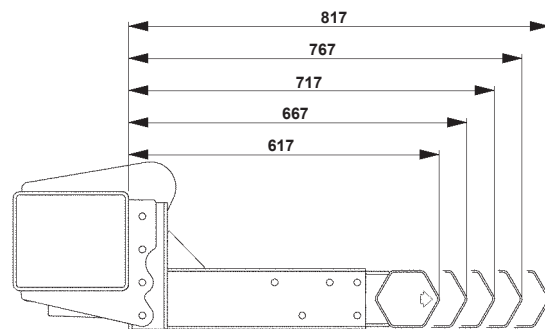


Image 54. The outer part of the brackets can be fitted in one of five positions

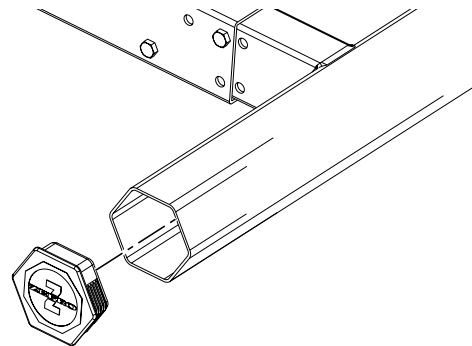


Image 55. Fit the beam end caps

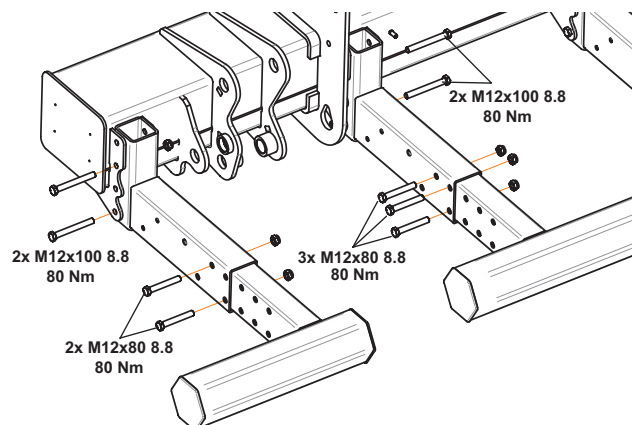


Image 56. Installing underrun protection

## 4.9 Purging the cylinders

Purge the lift cylinders by lowering the platform all the way to the ground a few times. It may be necessary to raise the truck to allow the platform to be lowered completely.

Purge the tilt cylinders by tilting the platform all the way up to the vehicle body and then all the way down.

## 4.10 Platform tilt speed

The downward tilt speed of the platform when operating within its working range (from 45° downwards) must not exceed 4°/second.

### 4.10.1 Setup

1. Put the platform at an angle of 45°.
2. Run the "Tilt down" function without using the 2H function and at the same time see how long it takes for the platform to reach horizontal position.
3. Calculate the tilt speed of the platform by dividing the number of degrees (45°) by the time taken. The result must not be greater than 4°/second.
4. If necessary, adjust the tilt speed using the knob on the hydraulic unit. The knob is fastened with a check nut. Then repeat steps 1-4 until the desired tilt speed is attained. Fasten the check nut once setup is complete.

#### **WARNING!**

The downward tilt speed of the platform when operating within its working range (from 45° downwards) must not exceed 4°/second. Higher speed means an increased risk of personal injury.

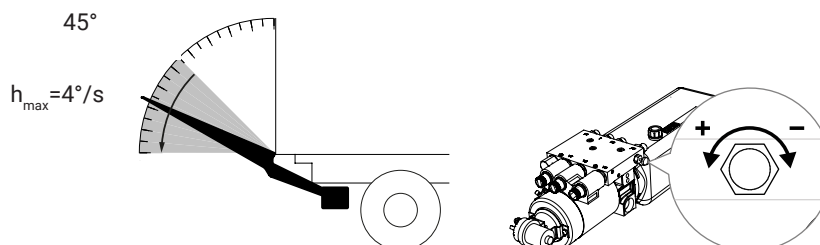


Image 57. Setting the tilt speed downwards within the working range (from 45° downwards)

### 4.10.2 Quick opening

The quick opening function is activated if the 2H button is held in at the same time as the buttons for the "Tilt down" function are held in, provided that the angle of the platform is then outside the working area (i.e. above 45°). As long as these buttons are held in, the platform will be tilted downwards at the highest possible speed to -10°. In this way, the time for opening the platform from vertical to horizontal position can be minimised without sacrificing safety.

## 4.11 Angle sensor / Inclinator

### 4.11.1 Tail lift without autotilt

1. Install the angle sensor on the platform using the nuts, bolts and washers supplied and attach the cable using cable tie; see. Image 58.
2. Connection is described later in section 6.

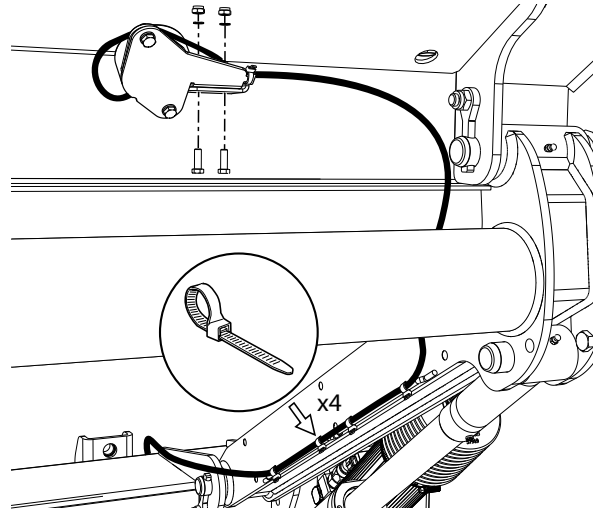


Image 58. Installing the angle sensor

### 4.11.2 Tail lift with inclinometer for autotilt

1. Install the inclinometer on the platform using the nuts, bolts and washers supplied and attach the cable using cable tie; see. Image 59.
2. Connection is described later in section 6.

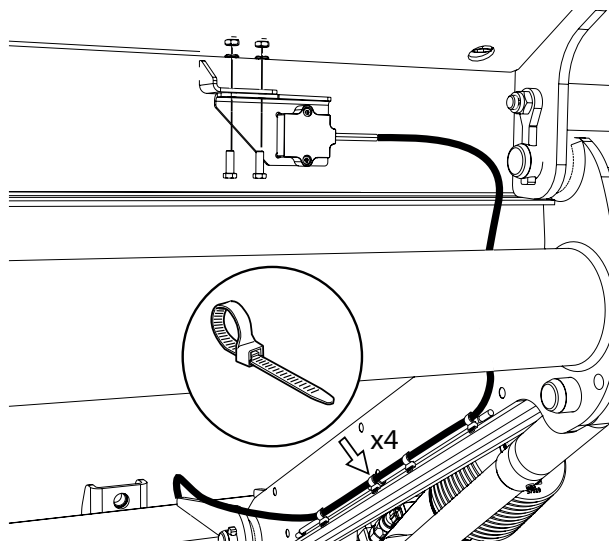


Image 59. Installing inclinometers



### 4.11.3 Tail lift with angle sensor IFM for autotilt

1. Install the angle sensor on the platform using the nuts, bolts and washers supplied and attach the cable using cable tie; see Image 60
2. Route the cables and secure with cable ties.

Connection is described later in section 6.

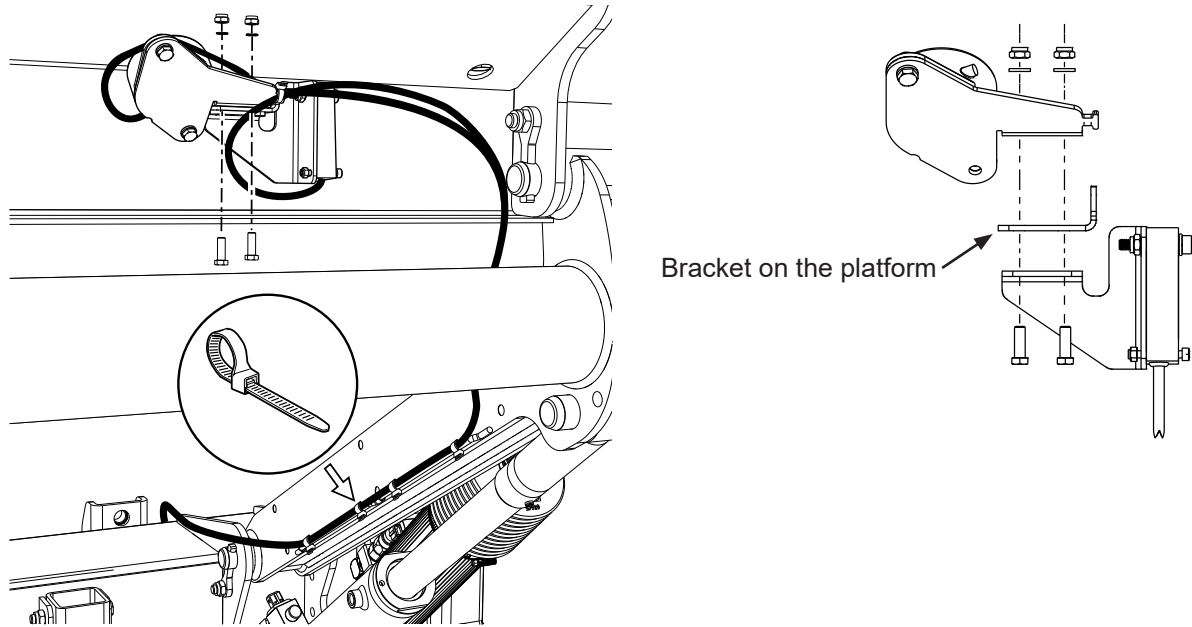


Image 60. Installing an angle sensor for auto tilt

#### Autotilt angle setting

By default, the autotilt angle is set to 0°. If necessary, the position of the angle sensor (autotilt angle) can be adjusted.

1. Loosen the two screws without removing them, see Image 61.
2. Adjust the position of the angle sensor to the desired angle, see Image 61.
3. Retighten the screws.

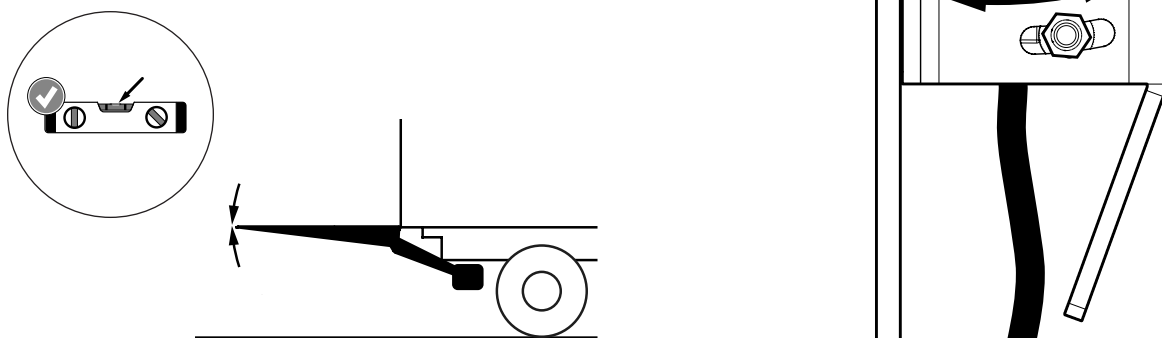


Image 61. Adjusting the autotilt angle

## 4.12 Controllers

1. Install the primary controller on the side of the vehicle normally facing away from the traffic. The distance between the vehicle's rear edge and the centre of the controller must be 300-600 mm. Connection is performed later in section 6 if this is not already done from the factory.
2. Any additional controllers can be installed in an optional location. Connection is described later in section 6.

### IMPORTANT!

The controller's cable intake must always face downwards.

Pay attention and be careful when running cables to get longer life for the cables and to reduce the risk of unnecessary downtime.

Cables must not be clamped to brake lines or the vehicle's normal electrical system.

The cable must be protected by rubber grommets when it passes through beams or walls.

Cables must be installed sufficiently far from, or be protected against, sharp edges so they cannot chafe or otherwise sustain damage that could lead to a short-circuit and cable fires.

Take care not to bend cables with too tight a radius as this can cause damage.

### WARNING!

The primary controller must always be fitted on the side that is facing away from moving traffic. Fitting in any other way involves increased risk of injury.

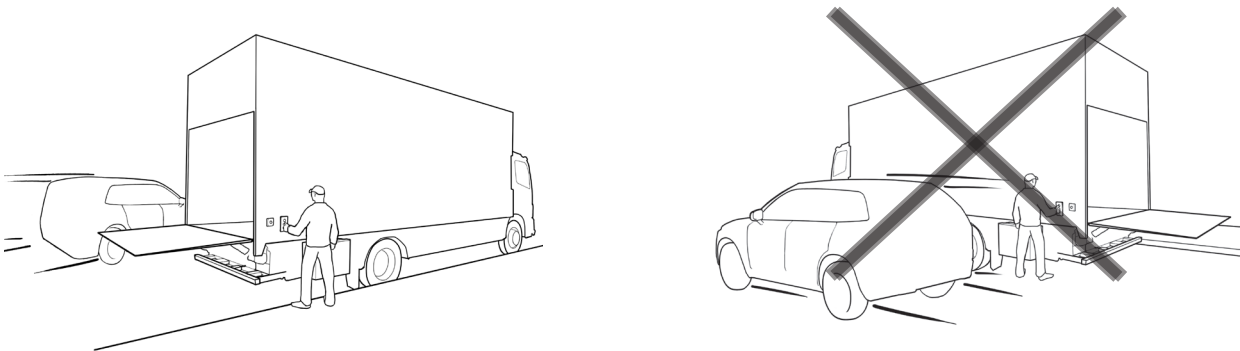


Image 62. Installing controllers

#### 4.12.1 Controllers 3+1 (CD 1)

1. Fit the controllers in the desired locations. However, locate them such that the operator's working position is as safe as possible, and with an adequate overview of the load, tail lift and their working area.
2. The distance between the vehicle's rear edge and the centre of the controllers must be 300-600 mm. The distance between the controllers must be at least 260 mm. See Image 63.
3. Any additional controllers can be installed in an optional location.
4. Run the controller cabling to the tail lift cable grommet. Connection is described later in section 6.

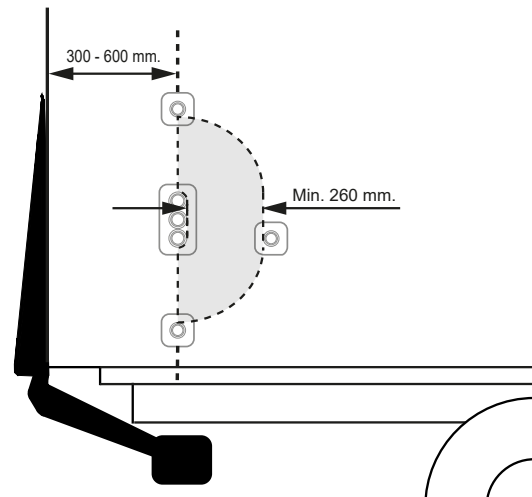


Image 63. Installing controller CD 1 with two-handed grip.

#### 4.12.2 Controller UCU (CD 19)

The UCU can be delivered as either a vertical or a horizontal controller

##### Installation on the outside of the body

The cable is always connected to the control unit. If the cable needs to be disconnected from the control unit to be pulled through the wall:

1. Raise the connector latch to pull out the connector. See Image 64
2. When the cable has been pulled through the wall, reconnect it to the controller and secure it using the latch.
3. Keep enough cable in the space on the back of the panel so that the plug can be detached from the panel in case of replacement in the future. Image 64

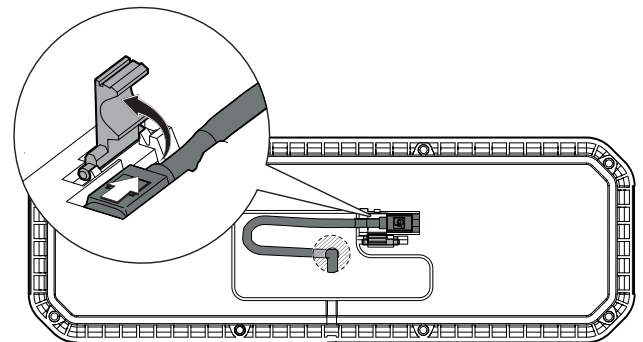
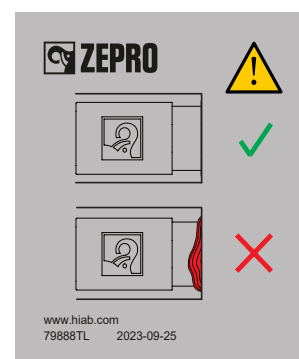


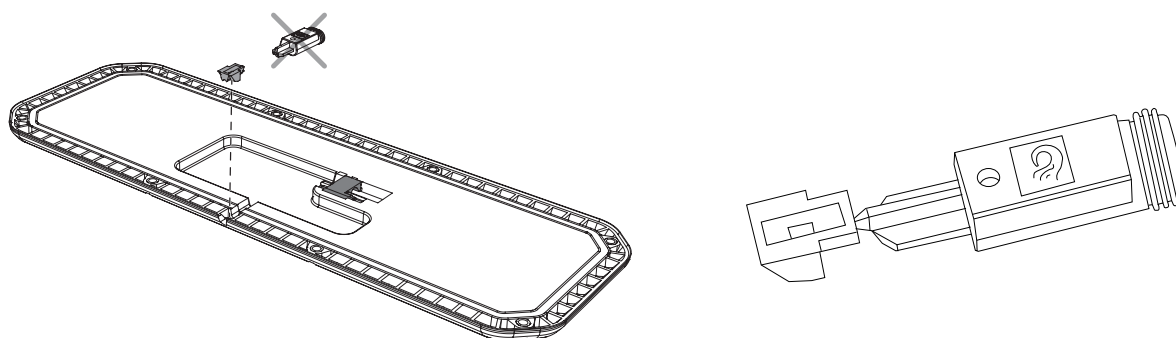
Image 64. Disconnecting the connector



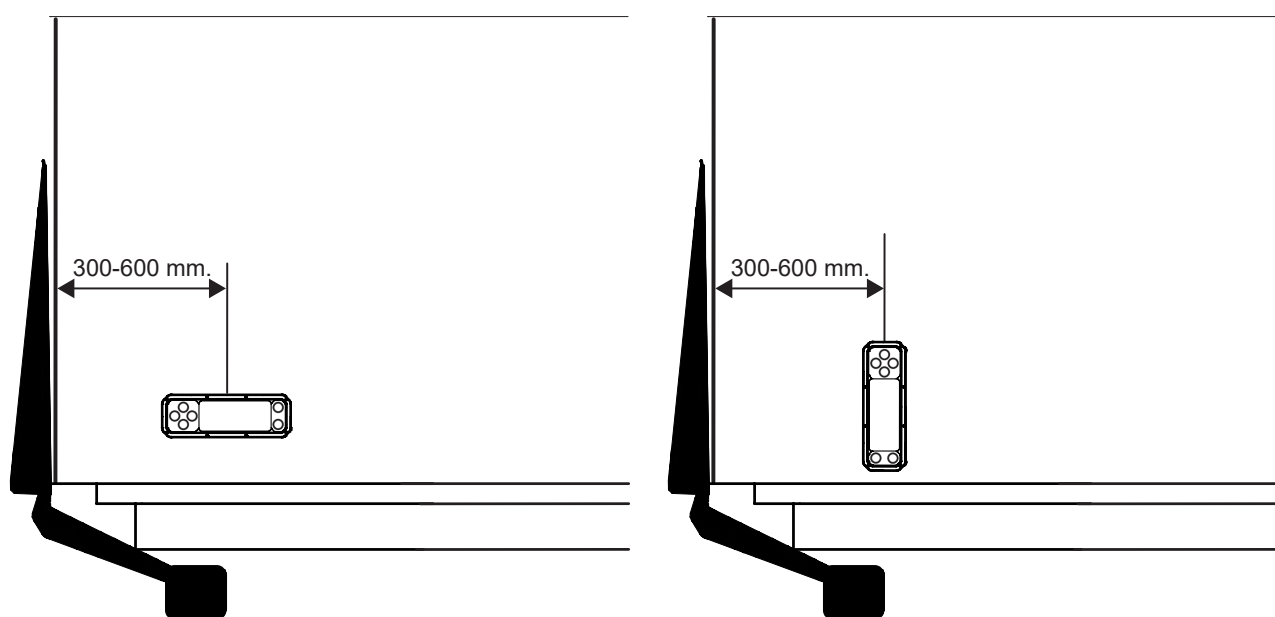
#### NOTE!

Make sure that the connector is correctly fitted with the rubber seal not be visible

4. Carefully break off the outer part of the plug and place in the recess. See Image 65.
5. Then install the controller securely on the body. See Image 66



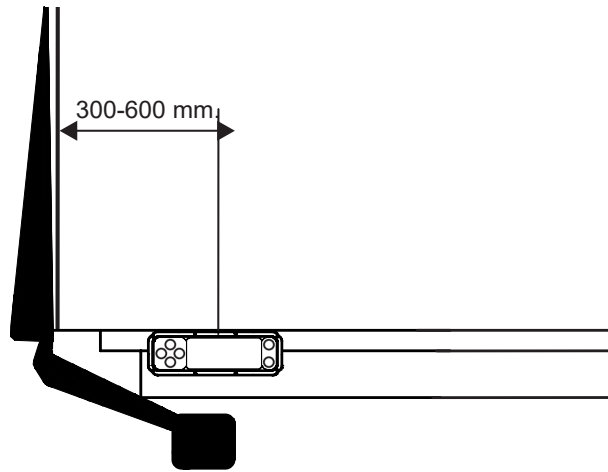
*Image 65. Installation of plug for sealing UCU.*



*Image 66. Installing controllers*

**Installation on the underside of the body**

The cable is usually connected to the controller and the controller bolted to the bracket at the factory. Bolt the bracket to the underside of the body. Use the self-adhesive drilling template supplied.



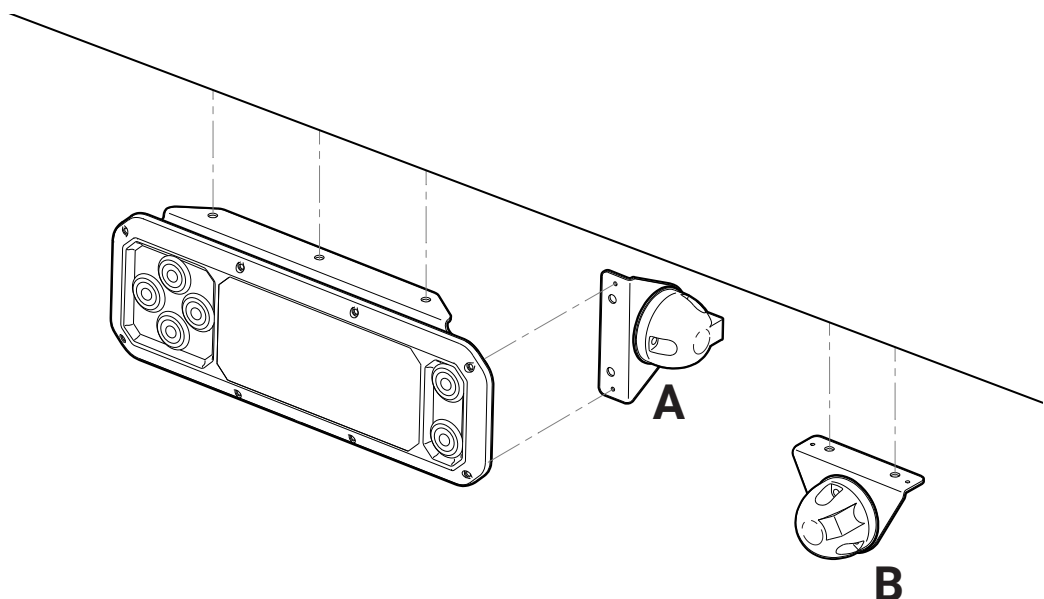
*Image 67. Installing controllers*

**4.12.3 Connector for a hand-held controller****Installing the controller bracket**

The connector is usually mounted on the bracket and connected to the lift. Bolt the bracket in the controller bracket. Use the nuts and bolts supplied.

**Installation on the underside of the body**

The connector is usually mounted on the bracket and connected to the lift. Bolt the bracket to the underside of the body. Use the self-adhesive drilling template supplied.



*Image 68. Installing controller CD19 and the connector for a hand-held controller*

## 5 Cable routing

### 5.1 General

#### IMPORTANT!

In order to ensure a high degree of reliability for many years to come, it is important that components such as batteries, chargers, main current and earth cables, fuses and main switches are dimensioned correctly and assembled with great accuracy. Insufficient battery power can permanently damage the electrical components in the tail lift (solenoid, electric motor, solenoid valves, relay board/control board and more.)

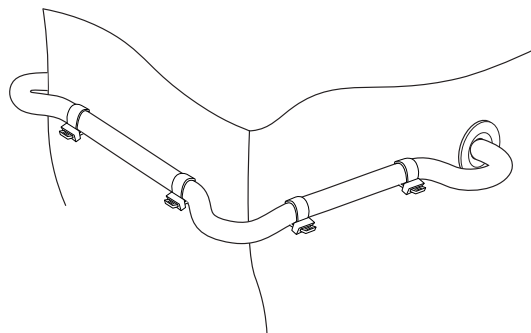
Insufficient main power and/or earth cable area may result in overheating, poor performance of the electrical system and shortened life expectancy of the main electrical components.

Earth connection must be made primarily to the negative terminal of the battery. Alternatively, another well-protected earthing point, which will not increase the voltage drop, can be used. The earthing point must be so well protected that increased voltage drop due to oxidation over time can be eliminated. Risk of material damage. Warranty rights do not apply to material damage caused by insufficient earthing.

Always install a shrink hose over the cable connection when installing cable terminals.

Pay attention and be careful during all cable routing to ensure longer cable life and reduce the risk of unnecessary downtime:

- Cables must not be clamped to brake lines or the vehicle's normal electrical system.
- The cable must be protected by rubber grommets when it passes through beams or walls.
- Cables must be installed sufficiently far from, or be protected against, sharp edges so they cannot chafe or otherwise sustain damage that could lead to a short-circuit and cable fires.
- Take care not to bend cables to too tight a radius as this can cause damage.



*Image 69. Protect the cable against sharp edges and use cable grommets*



*Image 70. Always use shrink hose over the cable connection when fitting cable terminals*

## 5.2 Maximum power consumption - Minimum recommended conductor cross sectional area

### ZN 2500 (200 bar)

Hydraulic unit 7100	24 volt
Pump - Motor unit	220 A
<b>Minimum recommended conductor cross sectional area</b> (copper cables, plus and minus cables)	
Control cable	1.5 mm <sup>2</sup>
Supply cable, L < 13 m	35 mm <sup>2</sup>
Supply cable, L = 13 - 19 m	50 mm <sup>2</sup>
Supply cable, L > 19 m	50 mm <sup>2</sup> *
<b>Battery</b>	
Min. capacity, $I_{min}$ (available for lift)	180 Ah
Min. voltage during operation, $U_{min}$ (at lift)	18 Volt

**\* Additional batteries required**

#### NOTE!

Make sure the tail lift has access to the minimum recommended current capacity ( $I_{min}$ ).

Some vehicle models have restrictions regarding the amount of current the lift can access from the existing battery. Some vehicle models do not fully charge the battery. It may therefore be necessary to switch to a battery and sometimes also to a charger with a larger capacity.

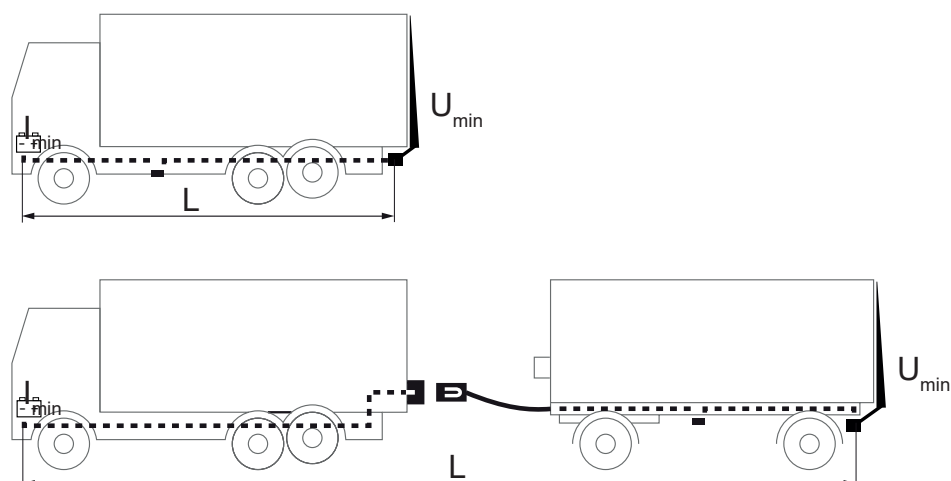


Image 71. Calculation of minimum conductor cross sectional area

### 5.3 Main power cable, earth cable, main fuse and main switch

Main switch should always be mounted when cab switches (CS) are not used, for example when installing on trailers. Main switches can also be installed in combination with cab switches (CS) if desired.

1. If the positive battery terminal is suitable for the main fuse of the lift, it can be used for mounting the fuse. Otherwise, secure the fuse box in a suitable, well-protected position as close to the battery as possible.
2. When using the fuse box, route the main power cable from the battery to the fuse box. Prepare the cable with cable terminals and shrink hose over the connections without connecting it. Connection is described later in section 6.
3. On tail lifts with cable-mounted quick connector for its earth connection, connect the earth cable to the quick connector.
4. Route/connect the tail lift earth cable to the negative terminal of the battery or to a well-protected earthing point.

**IMPORTANT!**

Earth connection must be made primarily to the negative terminal of the battery. Alternatively, another well-protected earthing point, which will not increase the voltage drop, can be used. The earthing point must be so well protected that increased voltage drop due to oxidation over time can be eliminated. Risk of material damage. Warranty rights do not apply to material damage caused by insufficient earthing.

#### When installing without main switch

5. On tail lifts with cable-mounted quick connector for its main power, connect the main power cable to the quick connector.
6. Route the main power cable from the tail lift to the fuse box/battery plus terminal. Prepare the cable with a cable terminal and shrink hose without connecting. Connection is described later in section 6.

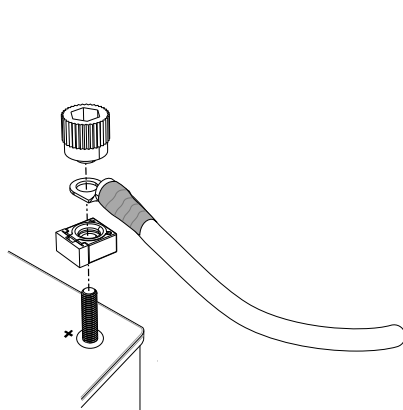


Image 72. Connection to the battery's positive terminal

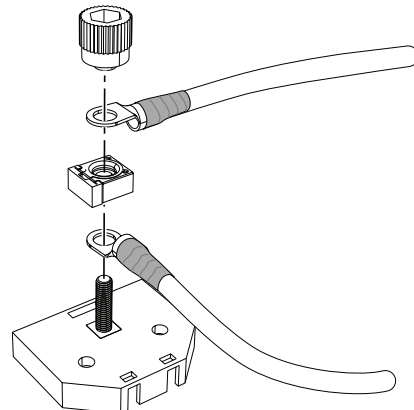


Image 73. Connection to the fuse box



### 5.3.1 Main power switch

1. Mount the main switch on a bracket next to controller CD 19 or in any well-protected place with universal bracket, see Image 74 and Image 75.

**IMPORTANT!**

The main switch drainage should always be directed downwards.

2. Connect the main switch cable to the main tail lift current cable quick connector.
3. Connect the main power cable to the second quick connector on the main switch cabling.
4. When installing the main switch and CD 19 controller on the arm attached to the tail lift, route the main switch and controller cables on the underside of the arm and fasten with cable ties.
5. Pull the main power cable from the main switch to the fuse box/battery plus pole. Prepare the cable with a cable terminal and shrink hose without connecting. Connection is described later in section 7.
6. Route the controller cabling onwards to the tail lift cable grommet where appropriate. In some cases, the controller cabling may already be connected at the factory. If not, it can be connected later in section 6.

**IMPORTANT!**

The positive cable to the battery and main fuse is connected later in Section 7, after the cable has been routed/installed.

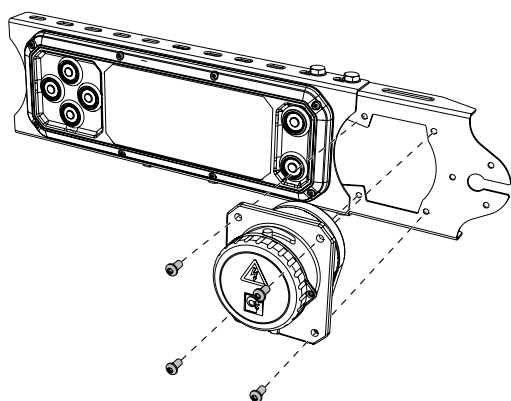


Image 74. Installation of main switch to CD 19 controller

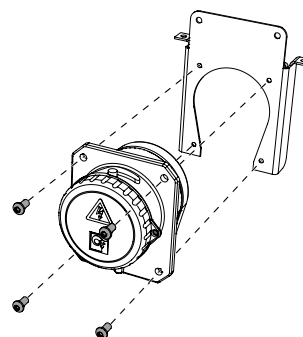


Image 75. Installation of main switch on universal bracket

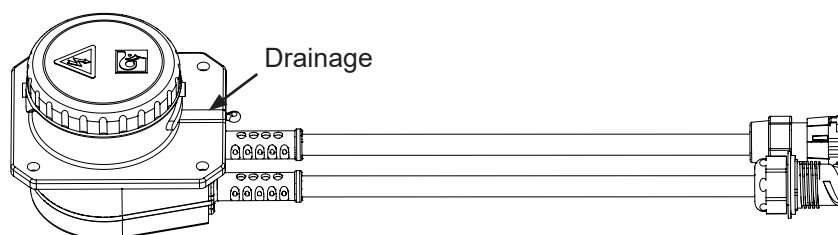


Image 76. Main power switch

## 5.4 Control power cable

When using cab switches (CS), route the control current cable from the cab switch CS to the tail lift cable grommet. Connection is described later in section 6.

## 5.5 Open platform alarm

An open platform alarm must be installed in the form of a warning lamp in the cabin. Route the lamp cables to the tail lift cable grommet. Connection is described later in section 6.

## 5.6 Foot controller / Warning lights

If the tail lift is equipped with warning lights and/or foot controller, their cabling must be routed and connected according to the following description.

1. Connect the supplied cable to the connector on the foot controller/warning lighting cable.
2. Route the cable and install with cable ties according to Image 77 and Image 78. The quick connector must be positioned in such a way that it does not conflict with the underrun protection while the lift arm is in motion. Measure the distance (A) from the centre of the lift arm shaft to the centre of the underrun protection; see Image 79.
3. Measure the same distance (A) on the lift arm; see Image 79.
4. Then place the quick connector at least 100 mm outside or inside the measured point (A); see Image 79.

Connection is described later in section 6.

### IMPORTANT!

Route the cable between the platform and the lift arm tube such that it is well protected when the platform touches the ground.

Position the quick connector in such a way that it does not conflict with the underrun protection while the lift arm is in motion.

Leave enough slack to the first cable tie to avoid the risk of damage to the cable during lift operation.

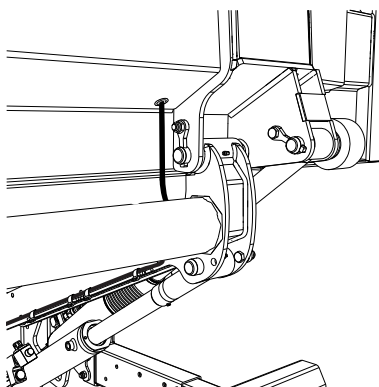


Image 77. Installing cabling

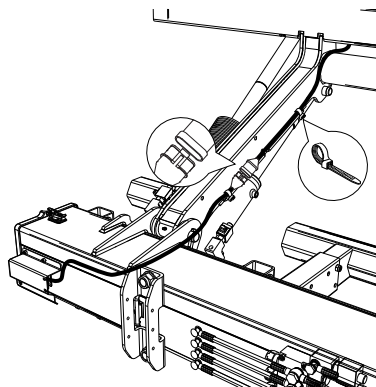


Image 78. Installing cabling

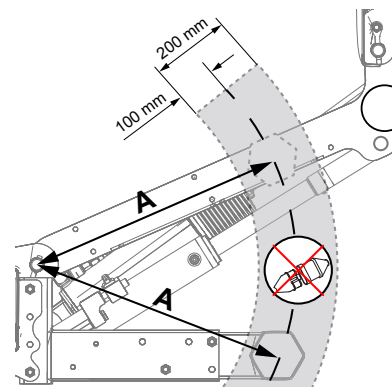


Image 79. Quick connector location

## 6 Connection

### 6.1 Cable grommet

#### 6.1.1 Before connection

1. Disconnect the cable grommet's protective cover, which is secured with three screws; see Image 80.
2. Loosen the five screws on the cable grommet, see Image 81. Cables can now be installed/removed/adjusted in the grommet. The cable should be installed together with existing cabling using cable ties. Ensure the length of the cable is sufficient. The outer casing should be stripped back 350 mm. See Image 82.

#### 6.1.2 After connection

1. Tighten the five screws once all cables are suitably located in the cable grommet, see Image 81. Tightening torque: 5 Nm.
2. Install the cable grommet's protective cover with the three bolts provided, see Image 80. Tightening torque: 8 Nm.

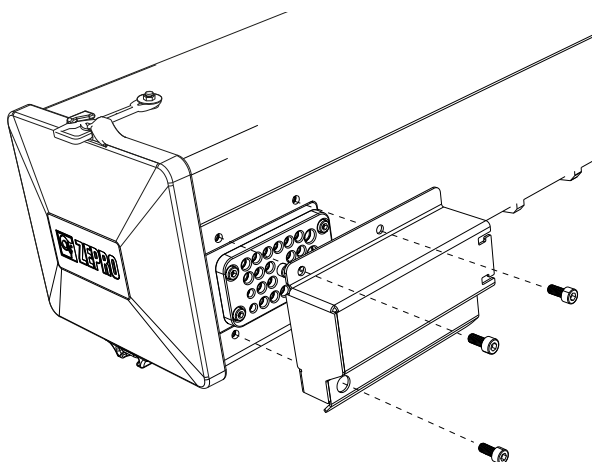


Image 80. Fasten the cable grommet's protective cover with three screws

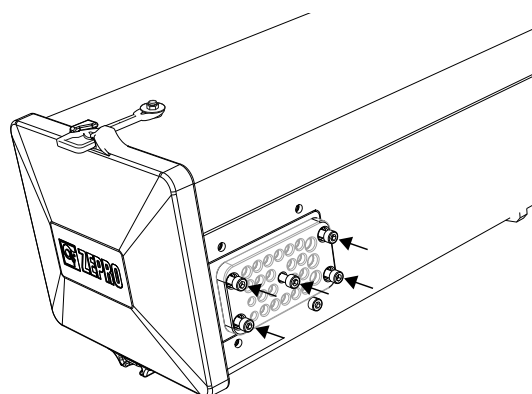


Image 81. Cable grommet's five screws



Image 82. The outer casing of cables should be stripped 350 mm.

## 6.2 Connection

**IMPORTANT!**

Make sure that the control board is disconnected from the power before connecting peripheral equipment. Risk of material damage.

1. Release and tilt out the relay board.
2. Run the cabling through the grommet.
3. Connect the relevant controller. See Section 6.2.1 - 6.2.2.
4. Where applicable, connect the warning lights. See Section 6.2.3 - 6.2.4.
5. Where appropriate, plug in cab switch (CS) and open platform alarm. See Section 6.2.5 - 6.2.7.
6. Route the cabling on the reverse of the control board / relay board and secure it with cable ties. See Image 83.
7. Tilt in and secure the relay board.
8. Replace the cable grommet, see Section 6.1.2.

**IMPORTANT!**

Ensure that no cables are pinched or in any other way damaged when the control board is tilted out/in.

**NOTE!**

The illustration shows the ZePRO1 control card, but the operation is the same regardless of the control card / relay card model.

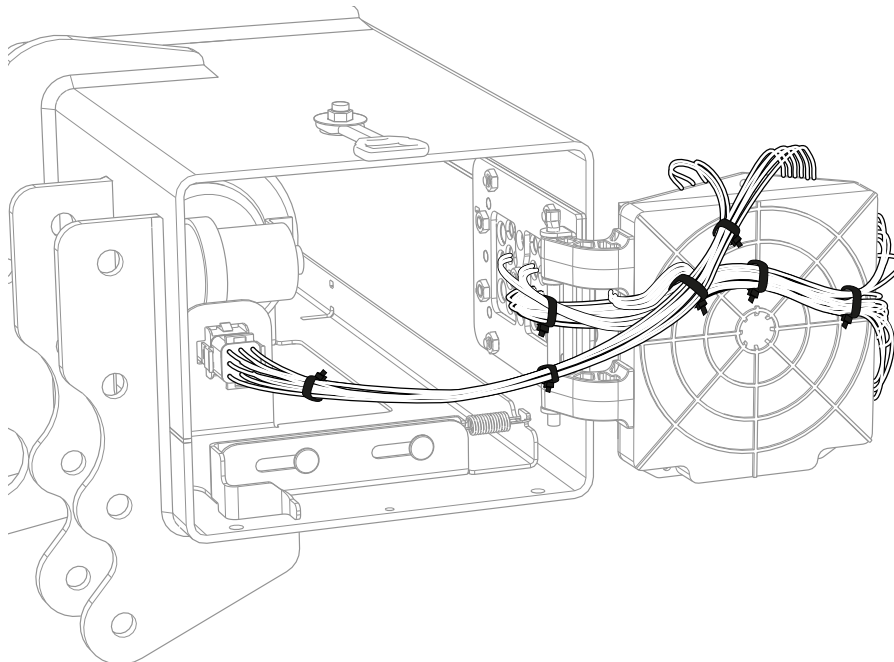


Image 83. Installing cabling with cable ties

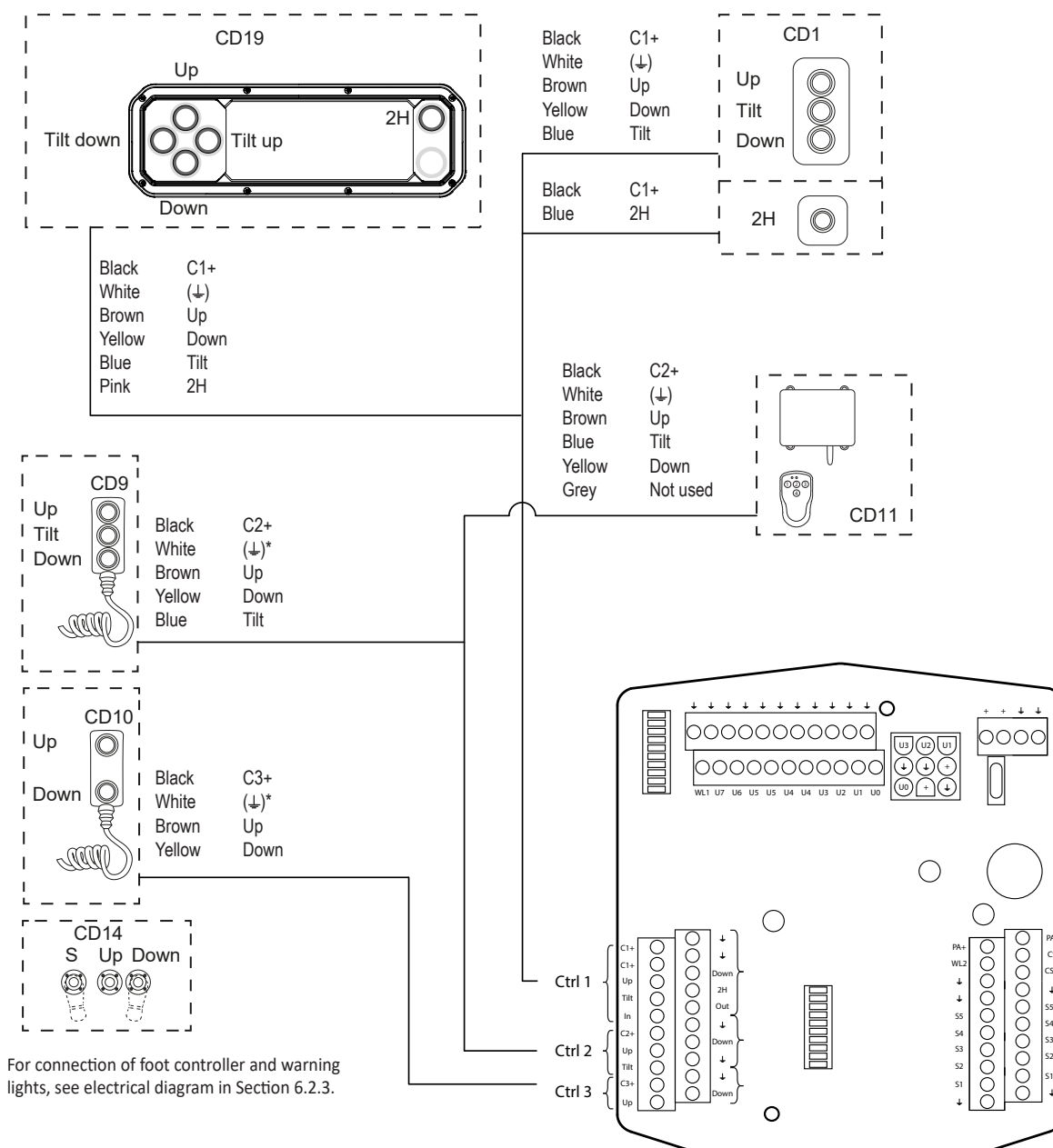
## 6.2.1 Controller (TLC-B1)

Connection of warning lights and the most commonly occurring controller (CD (Control Device)) models are shown below. Possible controller models vary depending on lift model, configuration and relevant market.



### WARNING!

Make sure that the control board is not powered up before connecting. Connecting more than one controller to each connection is not permitted. Risk of physical damage.



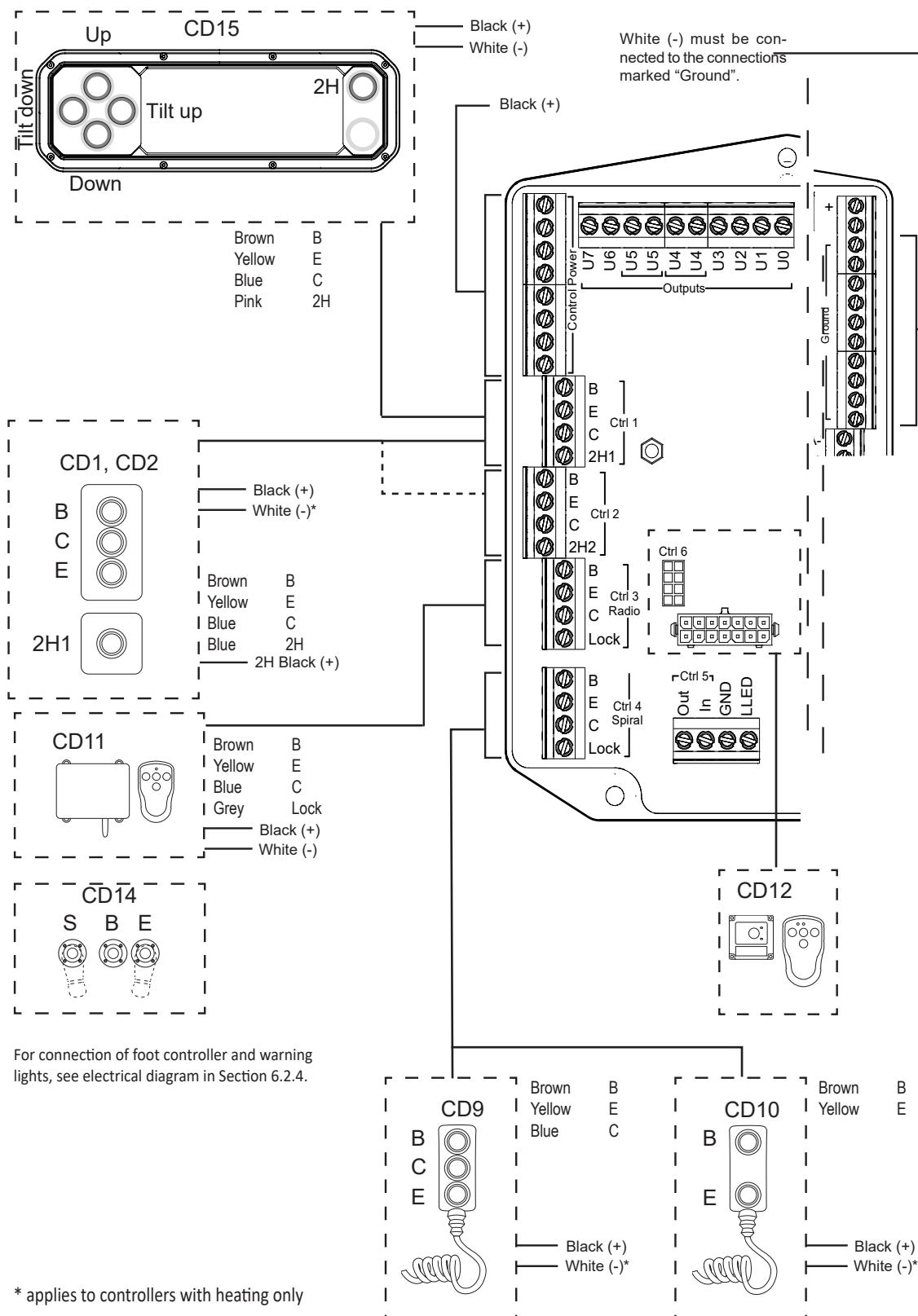
\* applies to controllers with heating only

## 6.2.2 Controller (ZePRO1)

The most commonly occurring controller (CD Control Device) models are shown below. Possible controller models vary depending on lift model, configuration and relevant market.

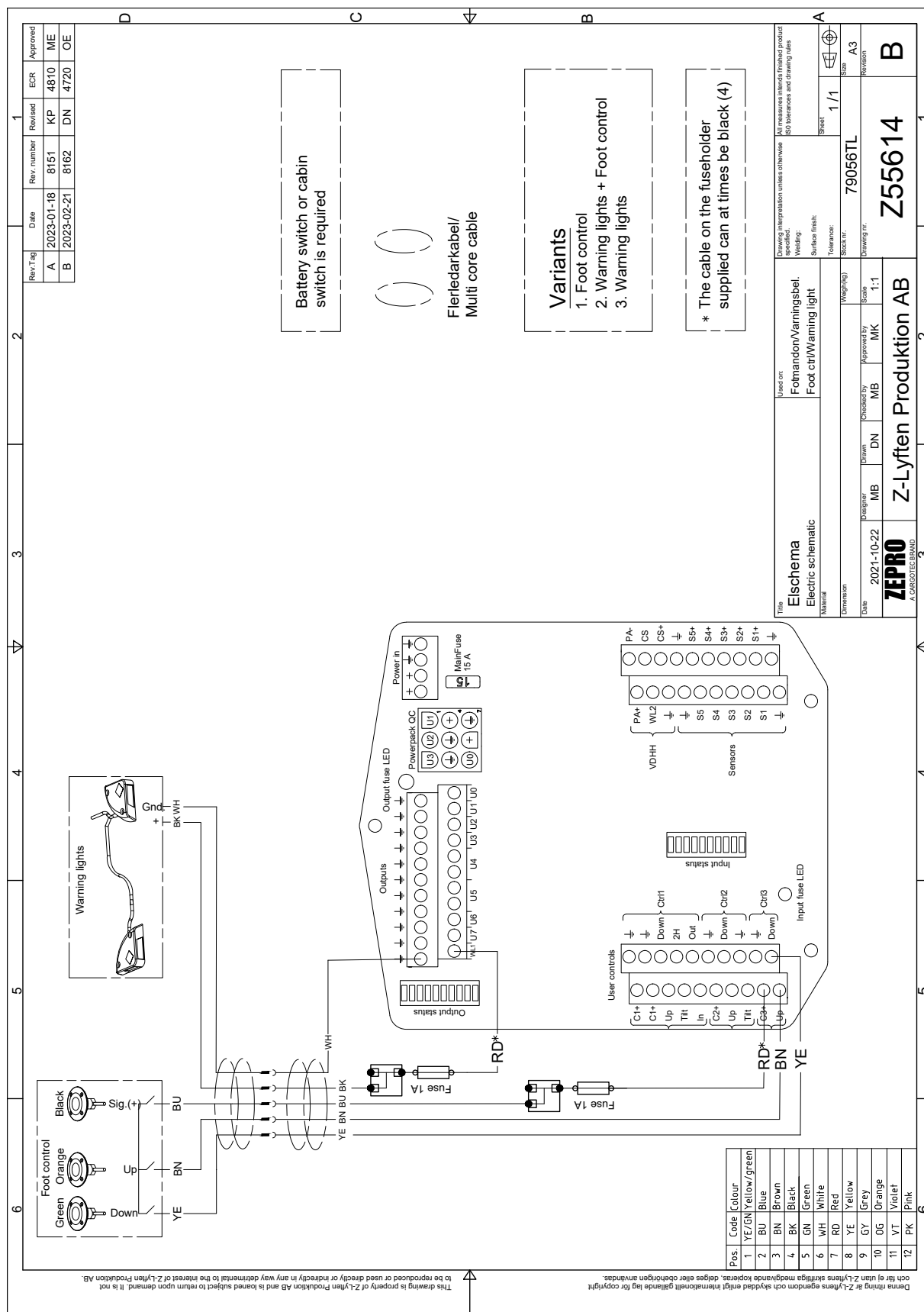
### **⚠ WARNING!**

Make sure that the control board is not powered up before connecting. Connecting more than one controller to each connection is not permitted. Risk of material damage.



### 6.2.3 Warning light and foot controller (TLC-B1)

Signal is required on relay card input S3 for the warning light to work. Depending on the model, this can be done by connecting angle sensors between S3 and S3+ or with jumper

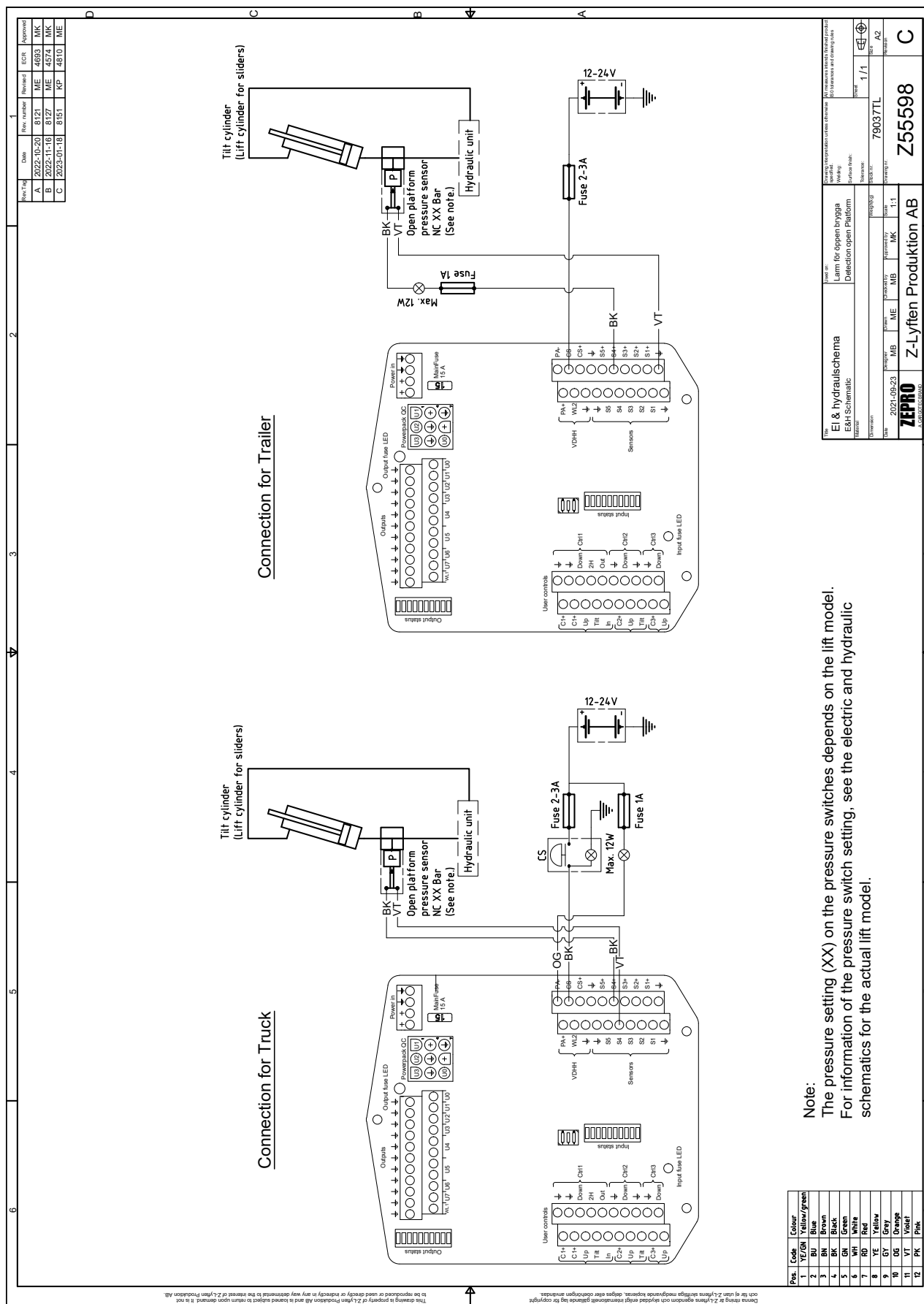


## 52





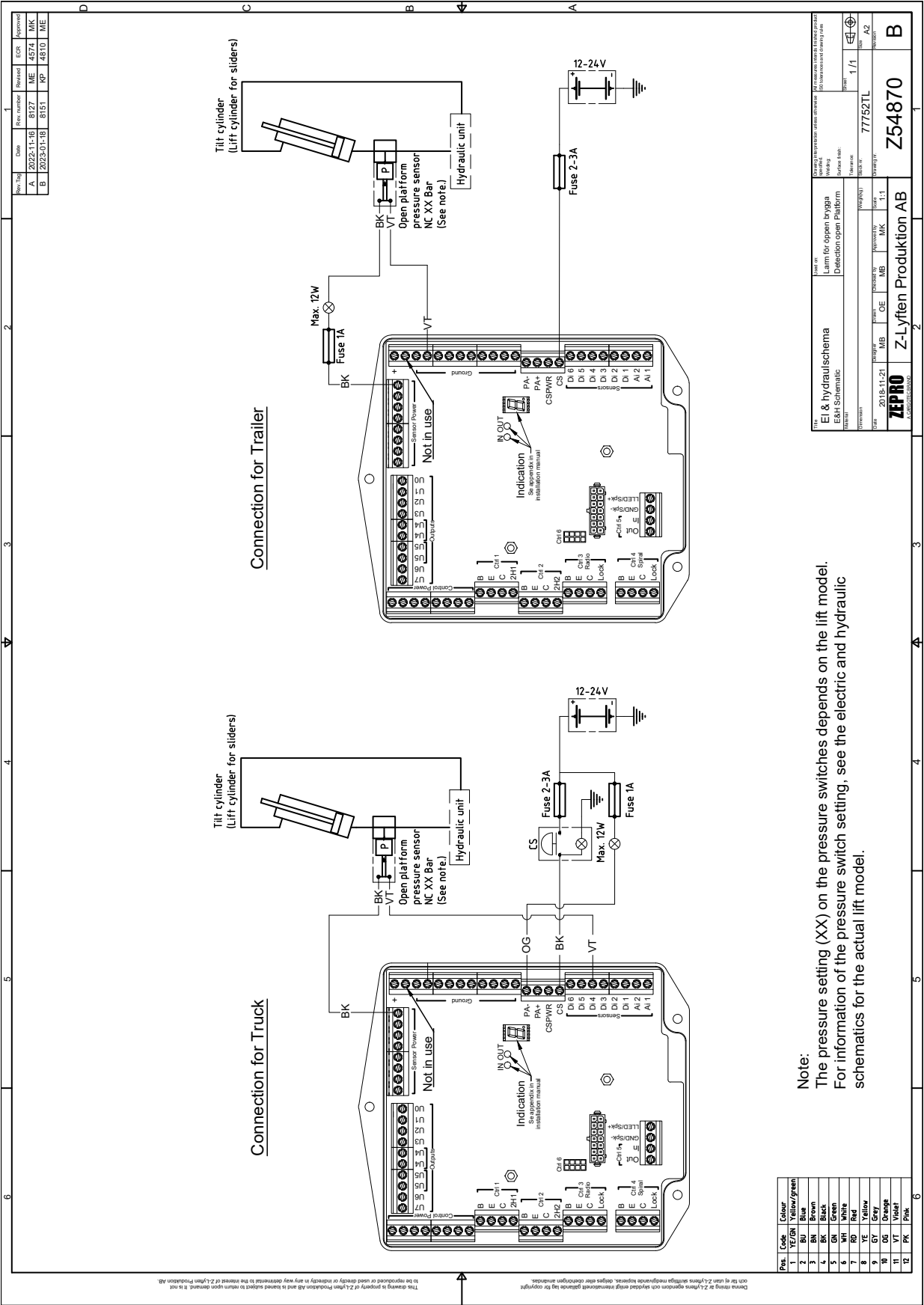
### 6.2.5 Connecting cabin switch and open platform alarm (TLC-B1)



Note:

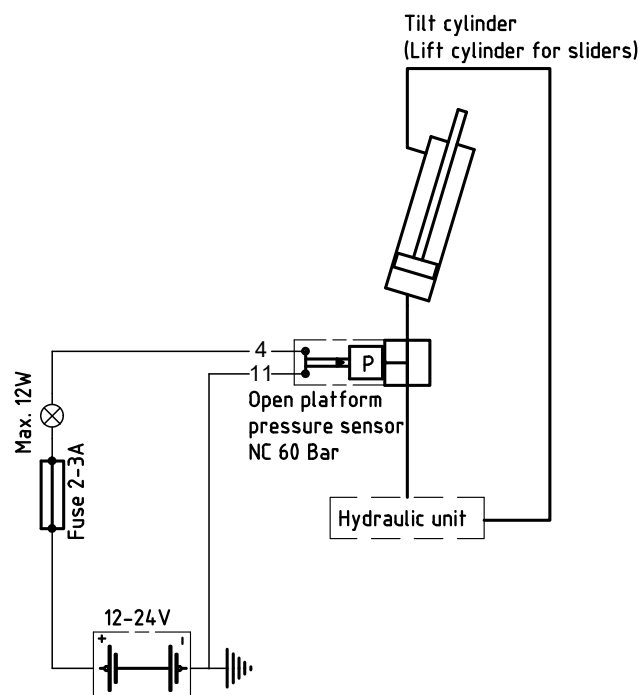
Note: The pressure setting (XX) on the pressure switches depends on the lift model. For information of the pressure switch setting, see the electric and hydraulic schematics for the actual lift model.

6.2.6 Connecting cabin switch and open platform alarm (ZePRO1)



### 6.2.7 Open platform alarm

Applies when installing with main switch



## 7 Powering up the tail 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 Image 84.
4. When connecting directly to the positive battery terminal, place the fuse (2) on the positive terminal, see Image 85.
5. Connect the main power cable (3) to the fuse box / positive terminal, see Image 84 - Image 85.
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 Image 84 - Image 85.

### 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.

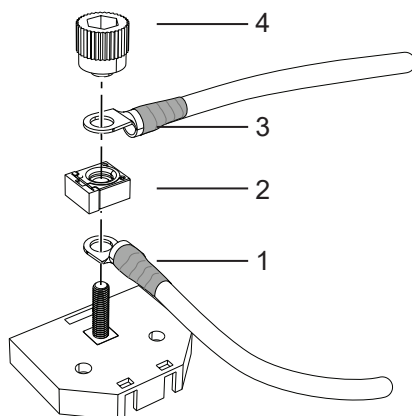


Image 84. Connection to the fuse box

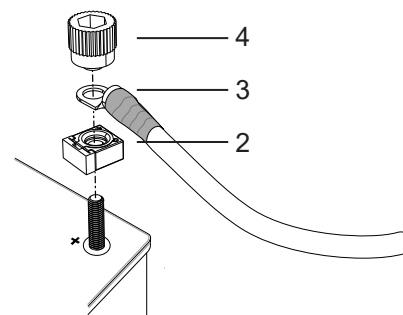


Image 85. Connection to the battery's positive terminal

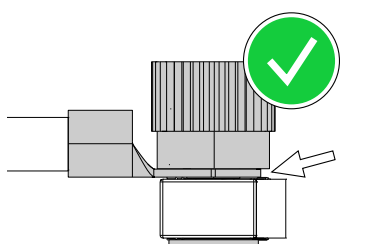


Image 86. Correct installation

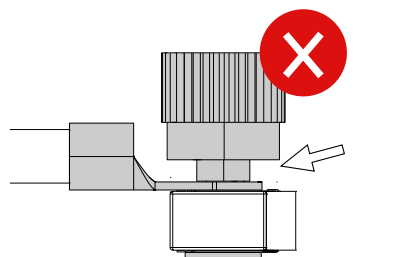


Image 87. Incorrect installation

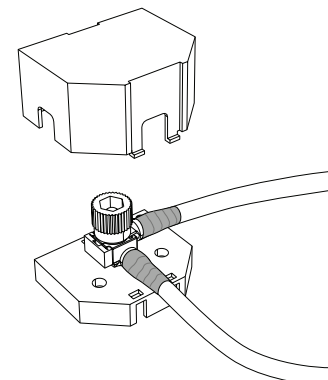
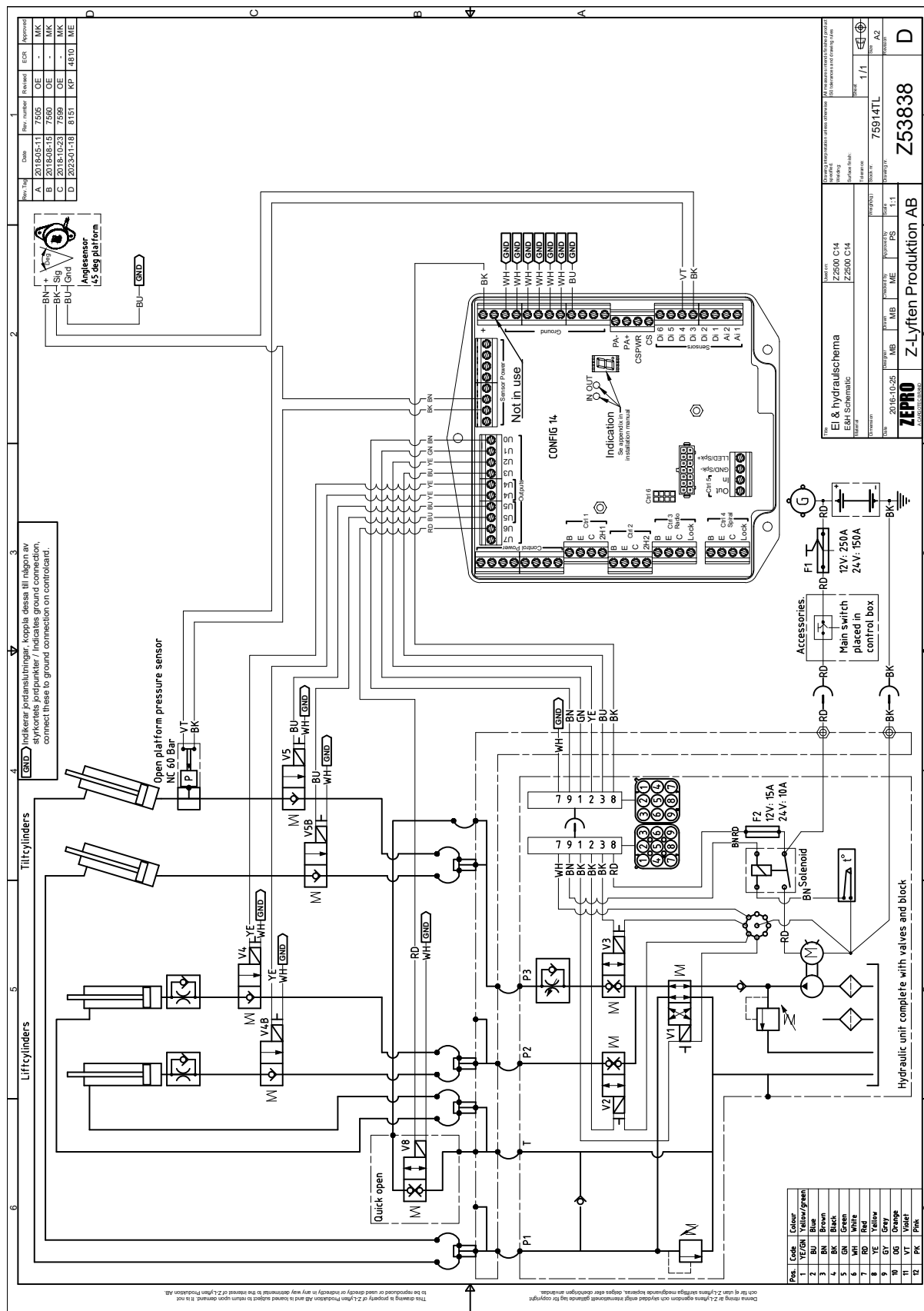


Image 88. Cover, fuse box

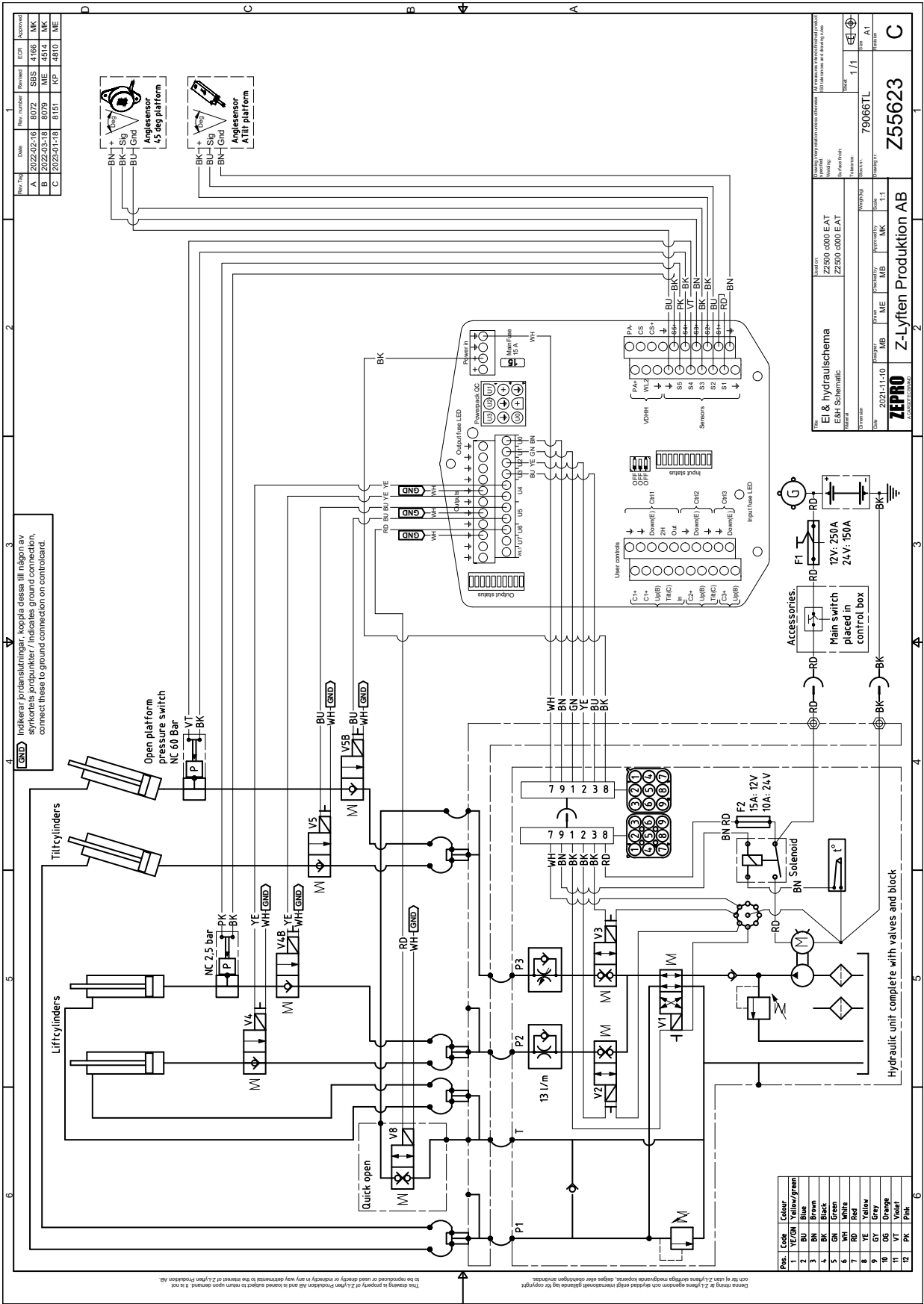
## 8 Electrical and hydraulic drawings

### 8.1 ZN 2500-130/150 MA

Config 14, Firmware 9.7 or later

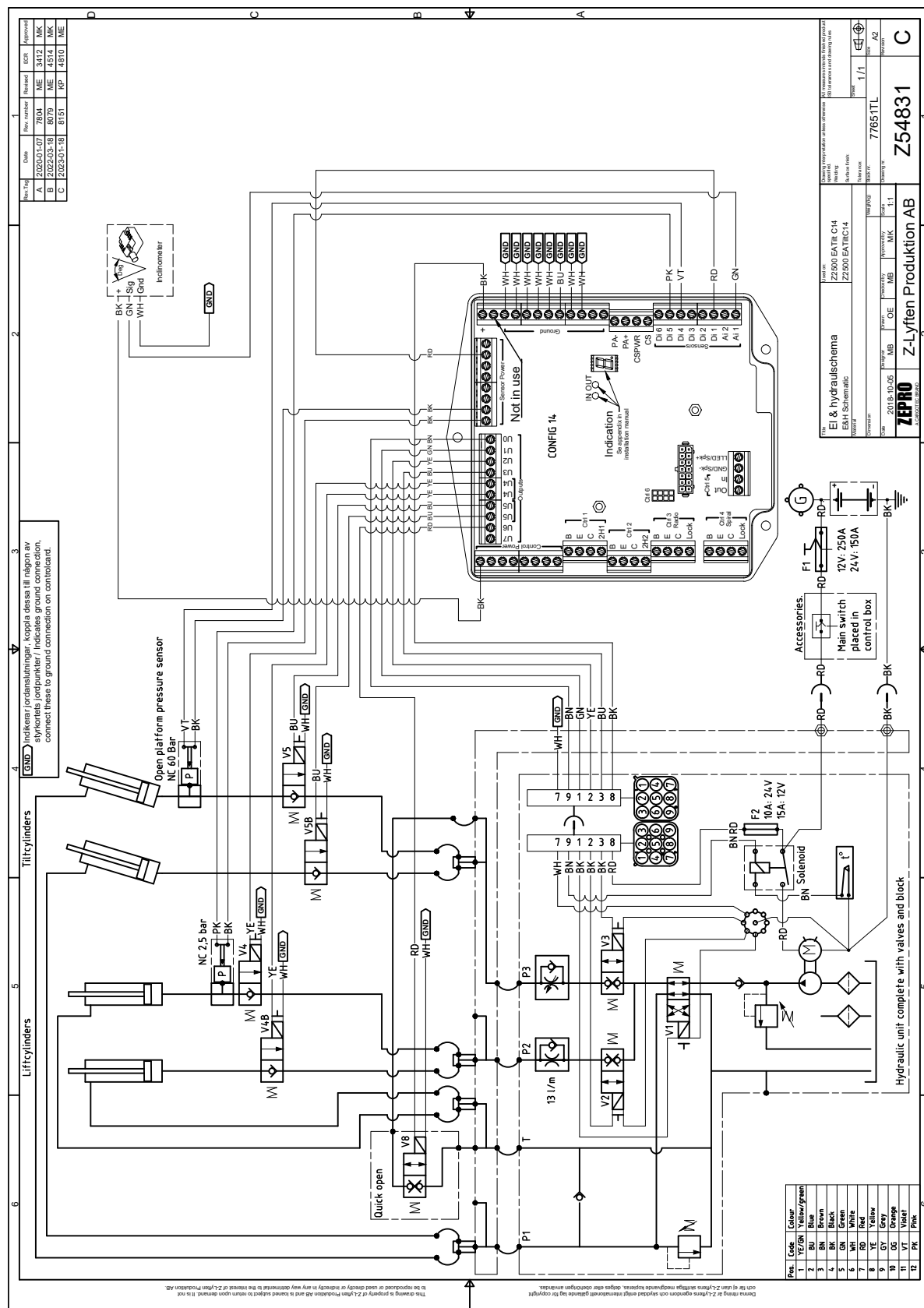


8.2 Z 2500 MA Autotilt IFM (TLC-B1)

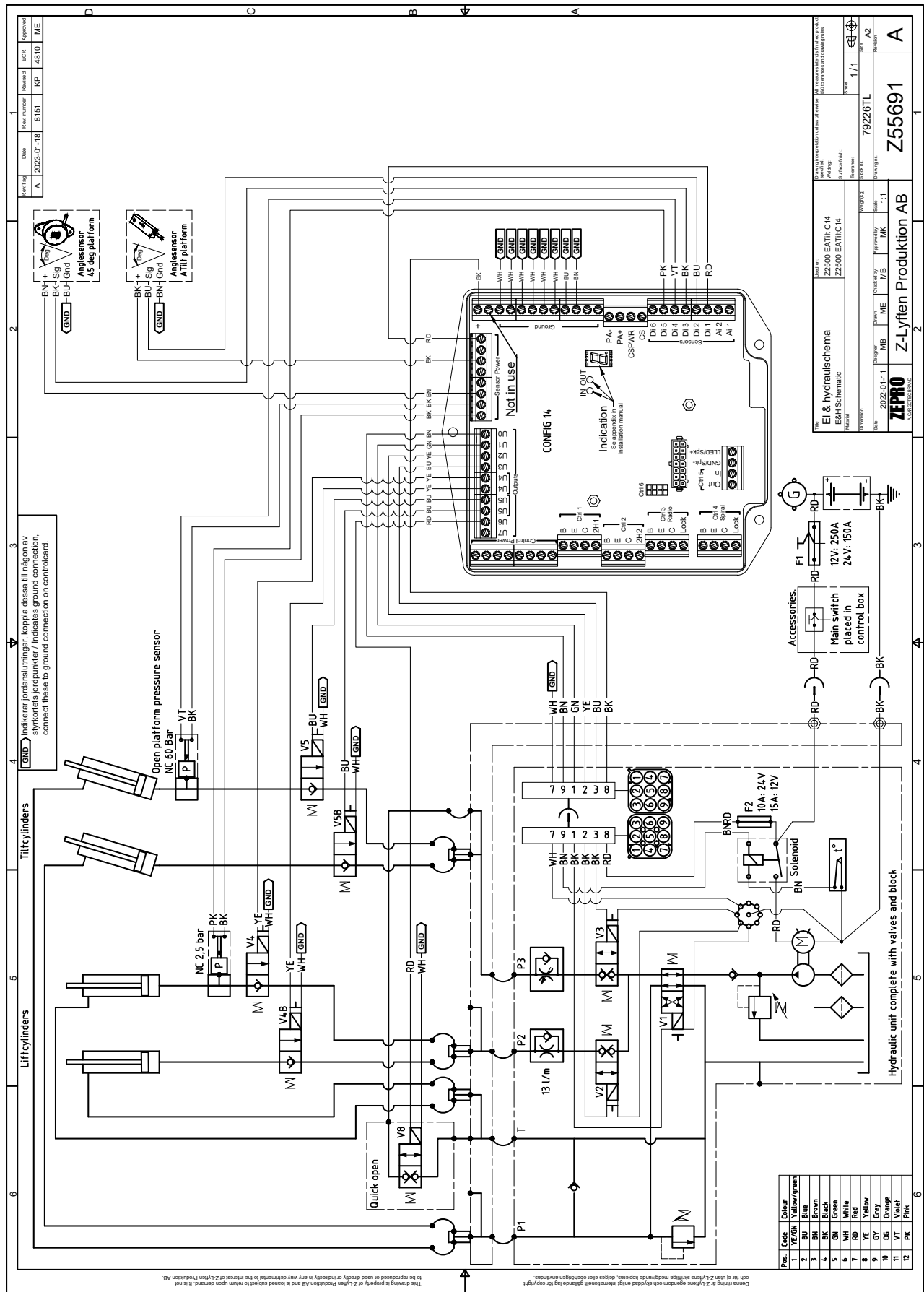


### 8.3 ZN 2500-130/150 MA with electrical autotilt

Config 14, Firmware 9.8 or later



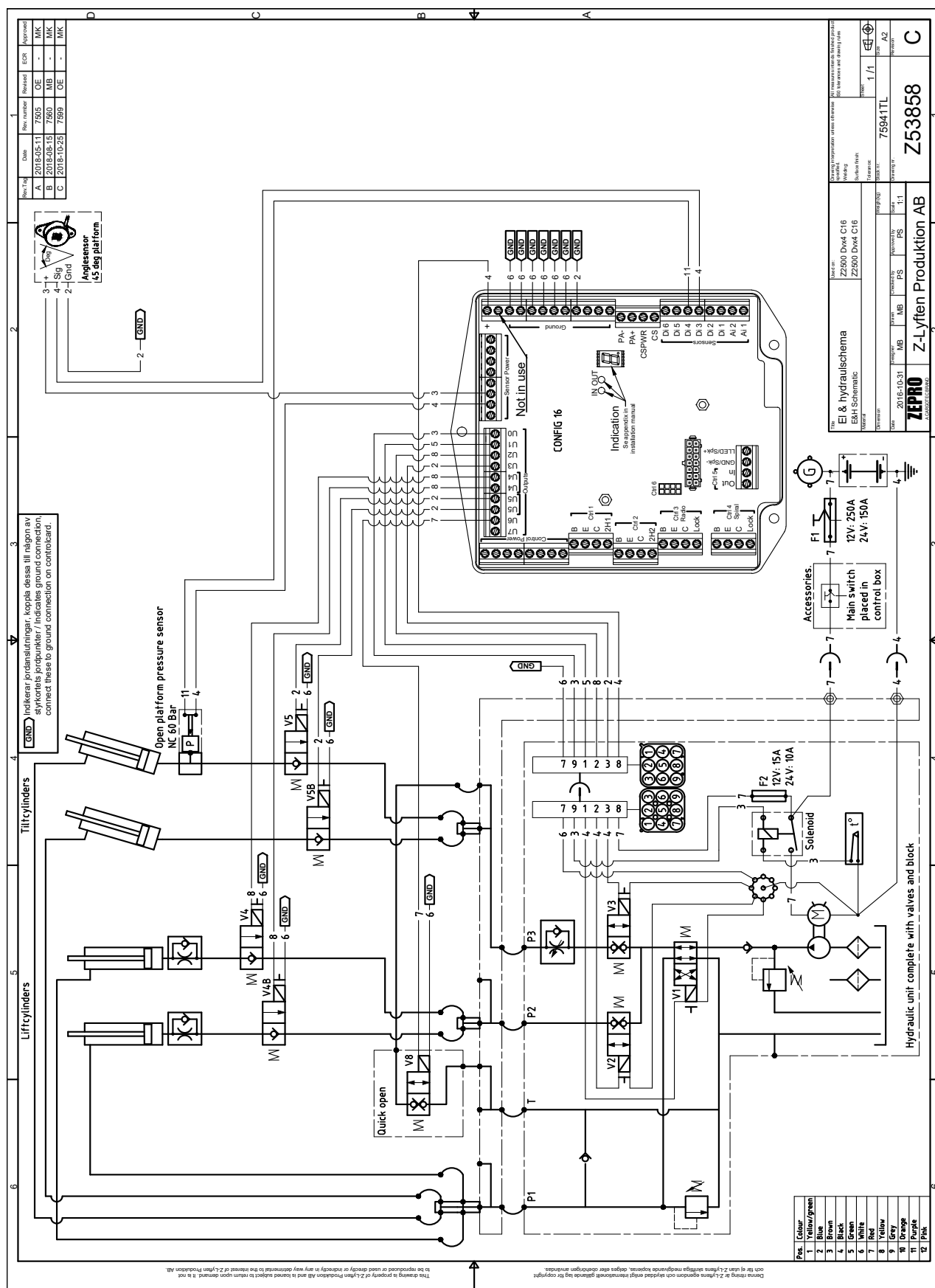
8.4 Z 2500 MA Autotilt IFM (ZePRO1)





## 8.5 ZN 2500-130/150 DA

Config 16, Firmware 9.7 or later



## 9 Lubrication and fluid level check

The following lubrication points must be greased on installation. They must then be lubricated at least once a year.

### 9.1 Lubrication

**NOTE!**

Use LE lubricant 4622 or the equivalent.

1. Right tilt cylinder, at lower bearing.
2. Right lift cylinder, at lower bearing.
3. Lift arm right side, at lower bearing.
4. Left lift cylinder, at lower bearing.
5. Left tilt cylinder, at lower bearing.
6. Lift arm left side, at lower bearing.
7. Left tilt cylinder, at upper bearing.
8. Right tilt cylinder, at upper bearing.
9. Lift arm right side, at upper bearing.
10. Right lift cylinder, at upper bearing.
11. Left lift cylinder, at upper bearing.
12. Lift arm left side, at upper bearing.

### 9.2 Oil level check

Check the fluid level in the tank during service, top up if necessary. The marking on the hydraulic tank indicates the type of hydraulic fluid used. Mineral hydraulic fluid, product no. 21963 (1 litre), or biodegradable synthetic fluid, product no. 22235 (1 litre).

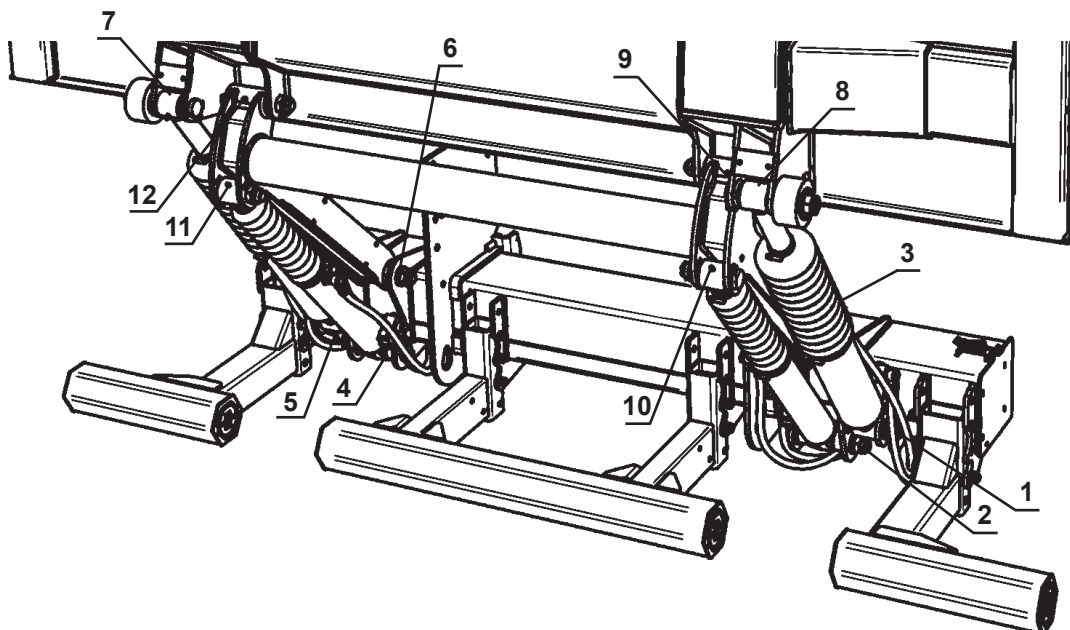


Image 89. Lubrication points

## 10 Marking

Below, an overview of the location of the different markings is shown. Image of marking and further information can be found under the each subchapter for subsequent pages.

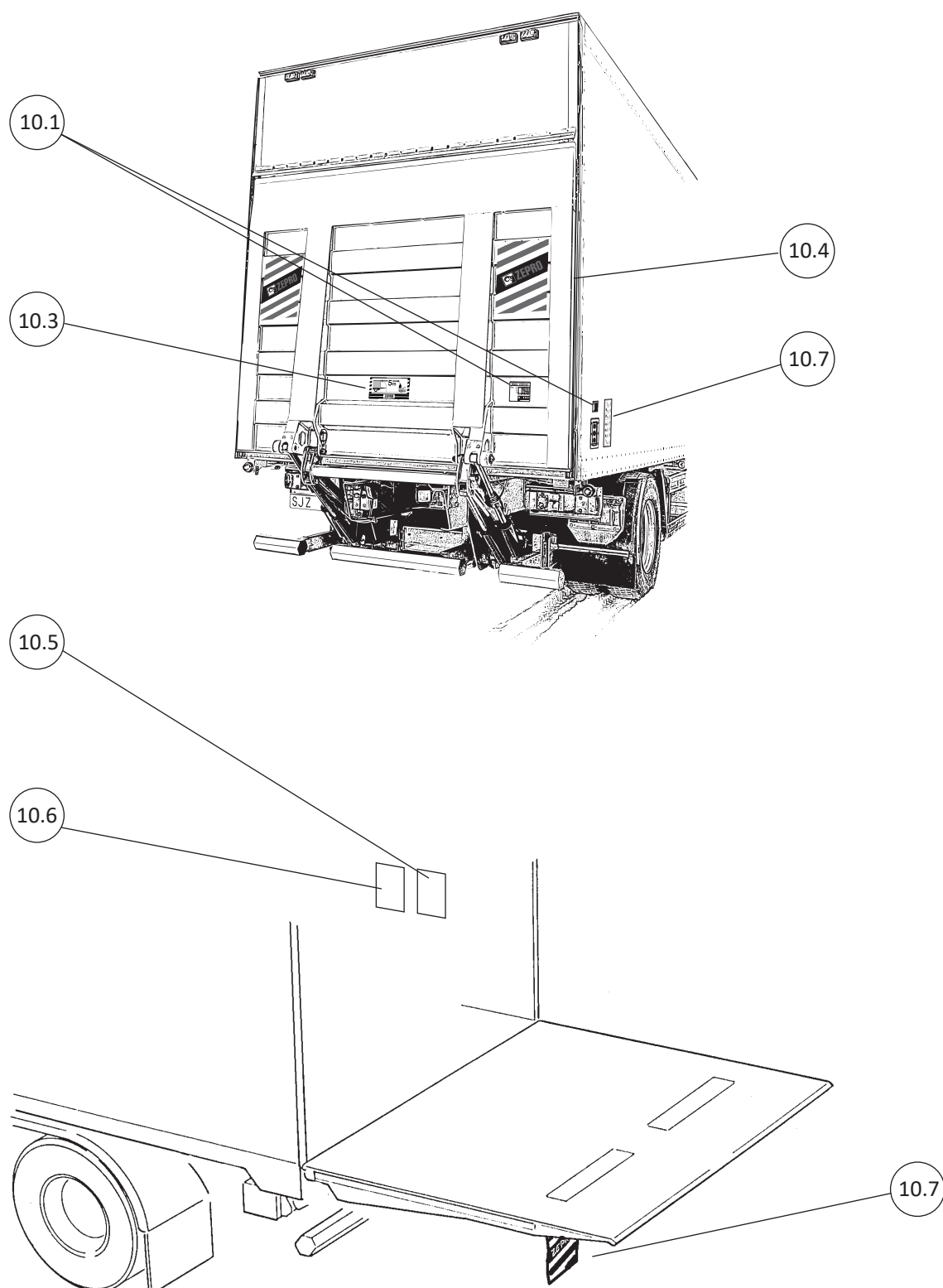


Image 90. Overview of labelling

10.1 Loading diagram

Affix the load diagrams for the appropriate lift model close to the primary controller and in a suitable clearly visible position on the vehicle body.

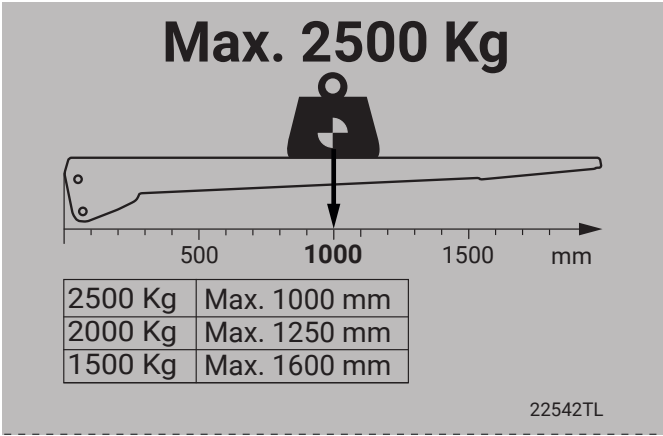


Image 91. Load diagram for load capacity 2500 kg, centre of gravity distance 1000 mm.

## 10.2 Identification plate

The identification plate is fixed on to the tail lift's frame. Affix the corresponding sticker version of the identification plate, preferably by the cab door post to facilitate identification.

The identification plate contains the following information:

- Type of lift
- Max. permitted load in kg
- Production number
- Year of manufacture
- Address and tel. no. of manufacturer
- Country of manufacture
- Type number for approved underrun protection (RUPD)
- Type number for electromagnetic compatibility (EMC)

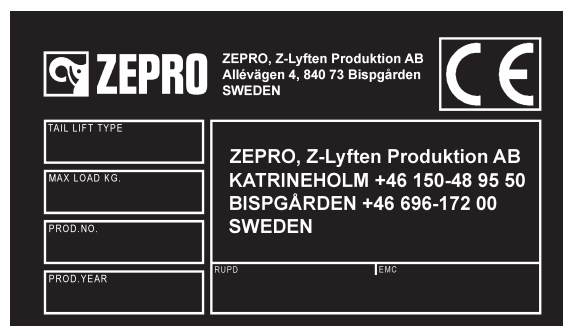


Image 92. Identification plate

## 10.3 Work area

Affix the sticker clearly visible on the rear of the vehicle.

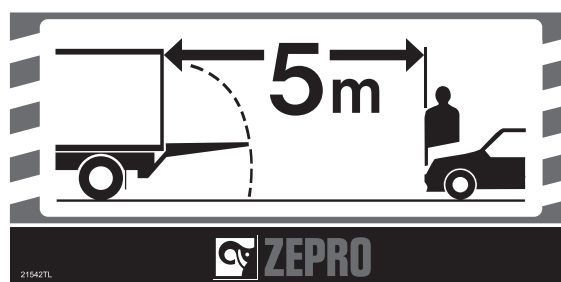


Image 93. Work area

## 10.4 Warning tape

Affixed along the platform edge strips to mark the platform edges in its lowered position.

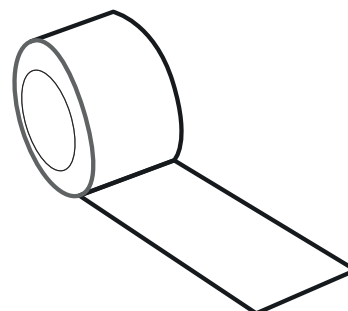


Image 94. Warning tape

10.5      **Controller sticker**

Affix the controller sticker next to the relevant controller. The stickers are available in standard versions and in reversed version for affixing on the opposite side of the vehicle. Make sure the stickers are affixed so the image of the vehicle/tail lift on the sticker is in the same direction as the vehicle on which it is affixed.

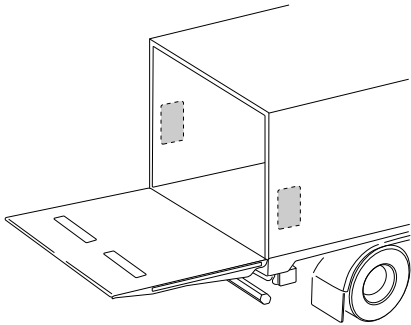


Image 95. Standard mounting

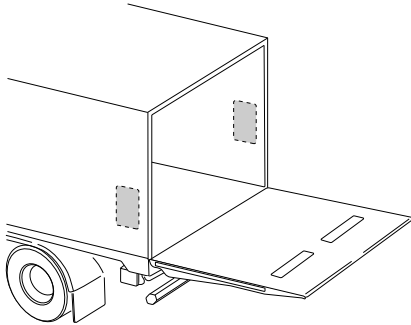


Image 96. Reversed mounting

Control device	Sticker
CD 1, 2, 9	55053TL*
CD 1,2,9 Horizontal	79854TL**
CD 4	55055TL
CD 10	77661TL

\* The sticker section for 2-hand operation is delivered on the same backing paper and has to be affixed if the application has 2-hand operation. For applications without 2-hand operation, this part of the sticker is discarded.

\*\* Ordered separately

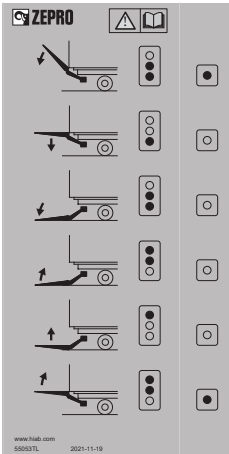


Image 97. Control device sticker for CD 1, 2, 9

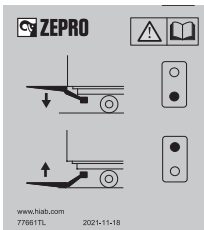


Image 98. Control device sticker for CD 10

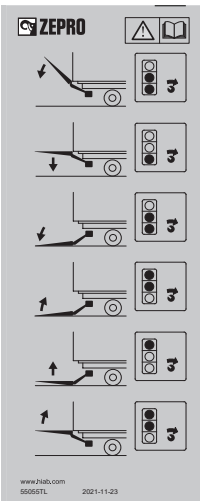


Image 99. Control device sticker for CD 4

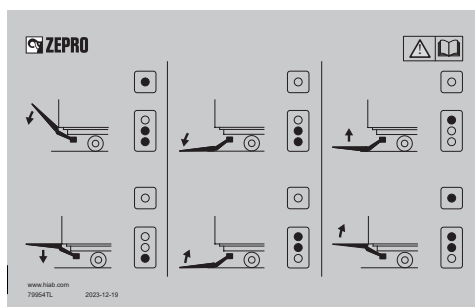


Image 100. Control device decal for CD 1 with the two-hand button mounted above the control device.

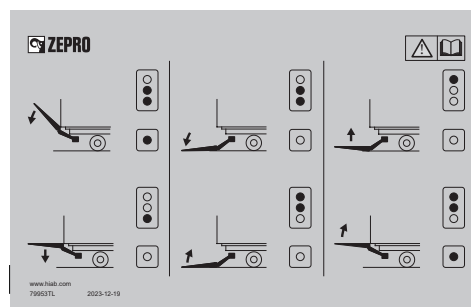


Image 101. Control device decal for CD1 with two-hand button mounted below the control device.

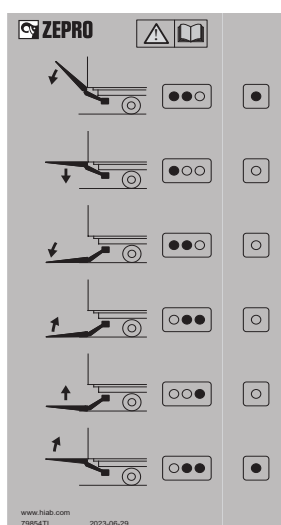


Image 102. Control device decals for CD 1, 2 and 9 for horizontal control device is ordered separately. 79854TL

## 10.6 Danger area

If one is fitted, affix the sticker on the inside of the vehicle body next to the hand control unit.

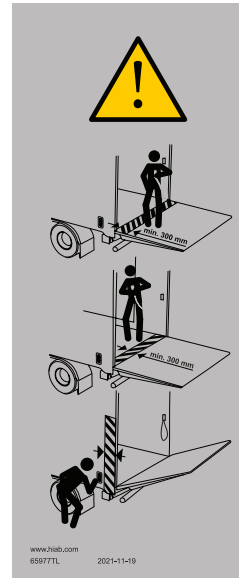


Image 103. Danger area

## 10.7 Warning flags

Attach warning flags as close as possible to the top and edge of the platform, where there is no risk of them coming loose when the platform is lowered to the ground. The flags must be provided with reflective tape.



Image 104. Warning flags



## 11 Testing and verification

Testing and verification of the tail lift takes place in accordance with the installation/delivery inspection. Verify that the tail lift is suitable for the vehicle in question and for the intended use.

### 11.1 Static load test

#### 11.1.1 Deformation

Position the tail lift half way up to the vehicle floor level and with the platform in the horizontal position. Measure dimensions A-B-C-D for comparison as illustrated.

Place a test load on the platform according to the table for the respective tail lift model and lifting capacity. Remove the test load from the platform.

Repeat the measurement of A-B-C-D and verify that there has been no deformation of the lift or its fixing.

#### 11.1.2 Drift

Place a test load on the platform according to the table. The tail lift must be at the same level and angle as the vehicle floor. Leave the test load for 15 minutes.

Verify that the platform drift is no more than 15 mm on the vertical (points A and D) and 2° in terms of the angle.

#### 11.1.3 Static load (Test load 1.25 x tail lift loading capacity). For tail lifts with load centre of 1000 mm

Capacity	Load 1500 kg	Load 2000 kg
	Distance out in platform (L)	
2500 kg	1625 mm	1250 mm

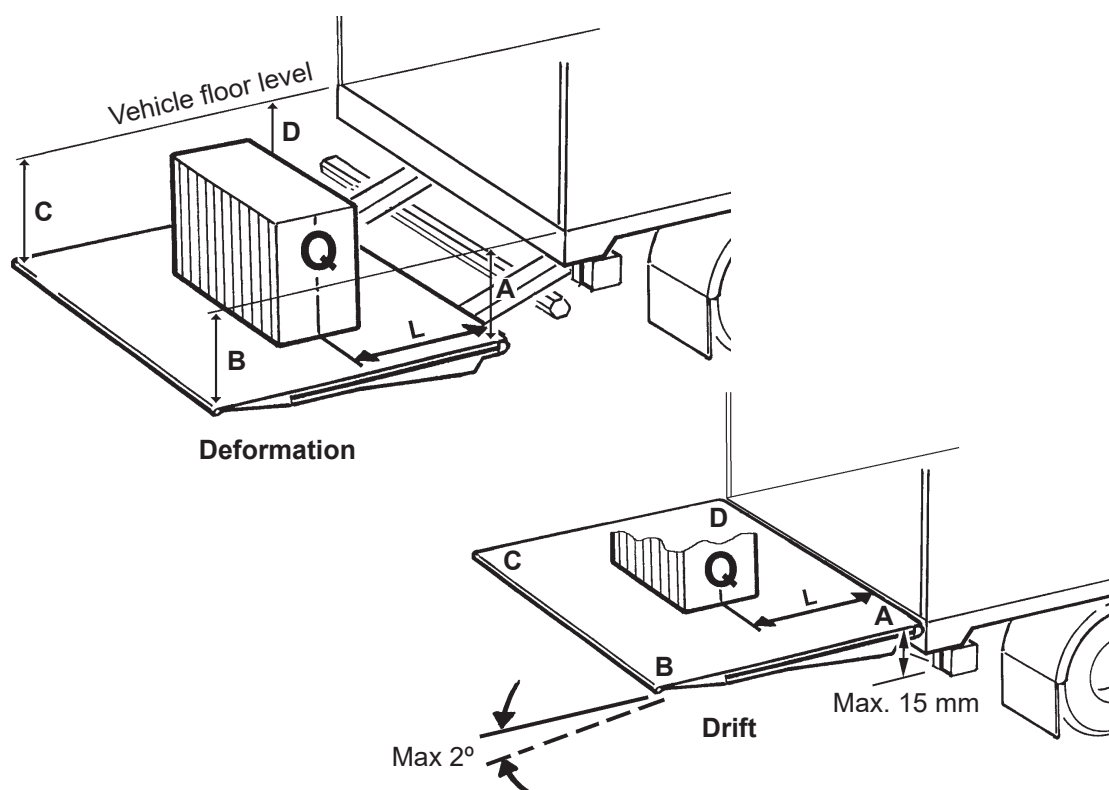


Image 105. Testing and verification

## 11.2 Dynamic load test.

### 11.2.1 Test with max. load

Place a test load on the platform according to the table for the respective tail lift model and lifting capacity. Check that the lift operates correctly in the normal range of movement allowed, i.e. up, down, tilting at ground level and tilting at the vehicle floor level.

### 11.2.2 Test with overload

Place a test load on the platform according to the table for the respective tail lift model and lifting capacity. The test load should be 1.25 x the lift model's max. load. Check that the tail lift cannot lift the load when the up function is switched on (it may however be possible to tilt up the load).

### 11.2.3 Dynamic load (Test load 1.0 x tail lift loading capacity). For tail lifts with load centre of 1000 mm

Capacity	Load 1500 kg	Load 2000 kg
	Distance out in platform (L)	
1500 kg	1000 mm	-
2000 kg	1300 mm	1000 mm

## 11.3 Test of safety functions

The tail lift functions must be tested.

Check:

- That the red light in the vehicle cabin turns off when the platform is completely closed against the body and that it turns on when the platform is opened (where applicable).
- that the platform cannot be opened or closed without the use of two-hand operation.
- that the platform cannot be tilted more than -10 degrees when using spiral cable controller or radio controller when the platform is flush with the vehicle floor.
- That the tail lift will not operate if the cabin switch is in the off position.
- That the tail lift cannot be operated when the main switch fuse is removed (where applicable).
- That the overflow valve is activated when the lift is operated up to the vehicle floor level or end stops.
- That the tail lift cannot be lowered or tilted down if the electrical connector from the electric hose breakage valves is removed from the lift and tilt cylinders respectively.
- That there is a "max. load" marking on the platform and it is correctly positioned according to the loading diagram for the tail lift model concerned.
- That warning flags and reflectors are fitted and fulfil their function correctly.
- That all safety and operating decals are installed in their respective position.
- That the mechanical lock of the platform functions correctly (where applicable).
- That the instructions for using the tail lift have been left in the driver's cabin.
- That the CE declaration of conformity has been completed.

## 12 Specifications

### 12.1 Weights

Many of the lift components are heavy, requiring the use of lifting equipment. Make sure the weight of the components does not exceed the maximum permitted load of the lifting equipment. The following is a list of selected components with their weight.

Complete lift chassis (without platform)		Lift components (included in complete lift chassis)	
ZN 2500-150	287 kg	Support frame ZN 2500	89 kg
		Lift arm Z 2500-150	53 kg
		3-part underrun protection complete ZN	57 kg
Steel platforms			
Steel platform 2000x2540 mm	335 kg	Complete chassis bracket ZN	39 kg
		Lift cylinder ZN 2500-150	9.5 kg each
Aluminium platforms Flat 40 mm		Tilting cylinder ZN 2500-150	18.3 kg each
Aluminium platform 1705x2540 mm	161 kg		
Aluminium platform 2005x2540 mm	180 kg		
Aluminium platform 2205x2540 mm	194 kg		



# HIAB

## **BUILT TO PERFORM**

Zepro, Del and Waltco are Hiab brands for tail lifts. Hiab is a world-leading supplier of equipment, intelligent services and digital solutions for on-road load handling. As an industry pioneer our company commitment is to increase the efficiency of our customers' operations and to shape the future of intelligent load handling.