

Installation Instructions

Tail Lift

ZAHD 150/200-155/175
ZAEHD 150/200-155/175

ZEPRO

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

E-mail: zeprotech@hiab.com | zepro.com

74227TL
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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: zeprotech@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.

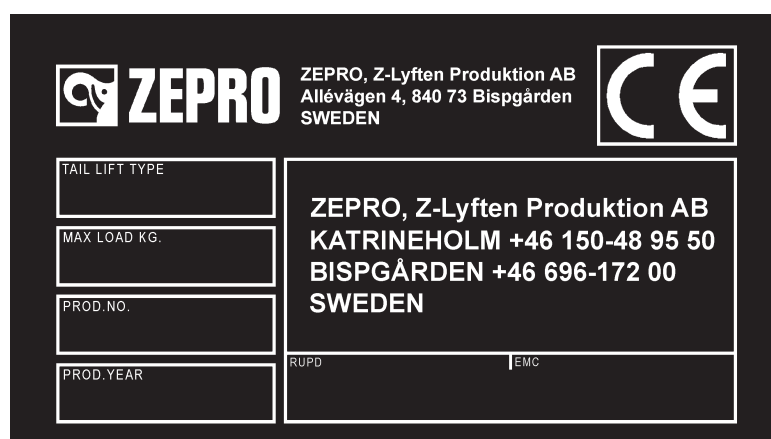


Image 1. Identification plate

1.3 Identifikation

T.ex ZAHD - 150 - 155 MA	
Identifications list	
ZAHD = Standard model	
Max liftcapacity x 10 (kg)	
Max lifting height	-155 = 1530 mm -175 = 1710 mm
Cylindermodel,	MA = Doubleacting Adjustable Tilt Single acting one speed Lift

1.4 CE marking

ZEPRO tail lifts for sale on the European market are CE marked (Conformité Européenne). The manufacturer guarantees that the product complies with the EU Machinery Directive.

Follow the installation instructions carefully. Modifications not approved in writing by the manufacturer are not permitted. Welding is not permitted.



1.5 Product approval

Properly assembled, this product meets relevant requirements according to EN 1756-1:2001 + A1:2008.

1.6 Hydraulic oil

If the hydraulic oil needs to be replenished, only the oil recommended by ZEPRO is permitted to be used.

Hydraulic systems with hydraulic oil tanks without labelling are only permitted to be filled with highly refined mineral oil (art. no. 21963, 1 litre).

Hydraulic systems with hydraulic oil tanks marked with a specification for the hydraulic oil are only permitted to be filled with the oil specified on the label.

1.7 Guarantee

The ZEPRO warranty applies only if assembly has been carried out according to ZEPRO's assembly instructions by a ZEPRO approved bodybuilder.

After installation, testing and verification, register the tail lift's delivery card to validate the warranty.

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.

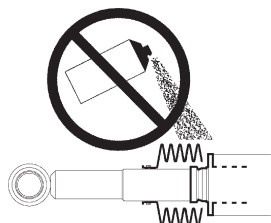


Image 2. Piston rods, cylinder covers and boots

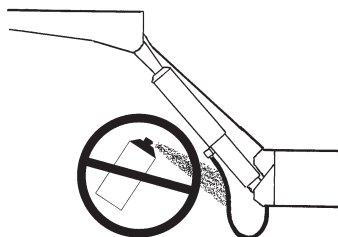


Image 3. Hydraulic hoses

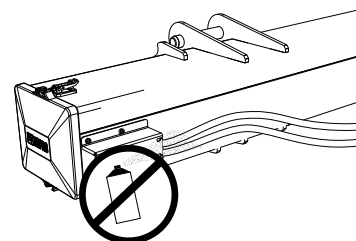


Image 4. Cables

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.

1.10 Configuration

The table below shows which chassis brackets match each vehicle model.

Truck make	Draw-bar	End panel	Chassis width	Chassis brackets	Complete weight	Art. no. (left, right)
DAF	VBG	EDH-2/3	790	ZAHD	14.9 kg	75443TL, 75442TL
DAF	VBG	EDH-2/3	790	ZAEHD	14.9 kg	75390TL, 75389TL
Iveco	VBG	EDH-3	758	ZAHD		75437TL, 75436TL
Iveco	VBG	EDH-3	758	ZAEHD		75397TL, 75396TL
Scania	VBG	EDH-2/3	766-770	ZAHD		75424TL, 75423TL
Scania	VBG	EDH-2/3	766-770	ZAEHD		75243TL, 75242TL
MAN	VBG	EDH-3	766-770	ZAHD		75424TL*, 75423TL*
MAN	VBG	EDH-3	766-770	ZAEHD		75243TL*, 75242TL*
Mercedes	VBG	EDH-2/3	848-850	ZAHD		75431TL, 75430TL
Mercedes	VBG	EDH-2/3	848-850	ZAEHD		75378TL, 75377TL
Volvo	Volvo	Volvo	850	ZA/HD elevated	25.4 kg	53887TL, 53886TL
Volvo	Volvo	Volvo	850	ZAE/HD	38.2 kg	57014TL, 57013TL
Volvo	VBG	EDH-2/3	848-850	ZAHD		75414TL, 75413TL
Volvo	VBG	EDH-2/3	848-850	ZAEHD		75365TL*, 75364TL*

* During installation, a shim plate in accordance with the following table is also required.

Truck make	Drawbar	End panel	Chassis width	Shim plate	Complete weight	Art. no.
MAN	VBG	EDH-3	766-770	ZAHD, ZAEHD		75383TL
Volvo			848	ZAEHD		77806TL

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.

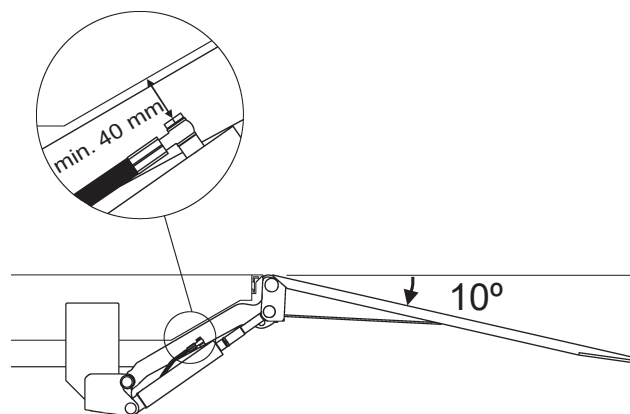


Image 5. Clearance to the closest part of the cylinder must be at least 40 mm

⚠ WARNING!

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

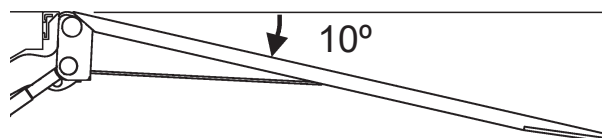


Image 6. The platform may not be tilted down more than 10° from the horizontal

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 1929 cm^4 . The cross-section of the frame beam shall therefore have at least dimensions of $255 \times 70 \times 6 \text{ mm}$, corresponding to a surface moment of inertia of 1929 cm^4 around the x-axis. See illustration.

If in doubt, contact ZEPRO for support.

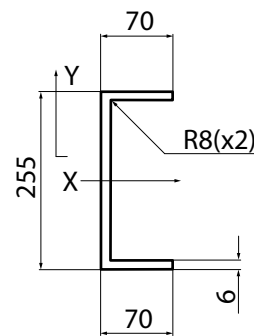


Image 7. The cross-section of the frame beam

⚠ 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 for underrun protection

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° , the distance between beam and ground in an unladen vehicle may be increased until the angle is 8° , but to Max. 550 mm.

Horizontal distance from the outermost part of the platform to the underrun protection: Max. 294 mm. See illustration below.

NOTE!

The underrun protection may be placed further back and lower.

NOTE!

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

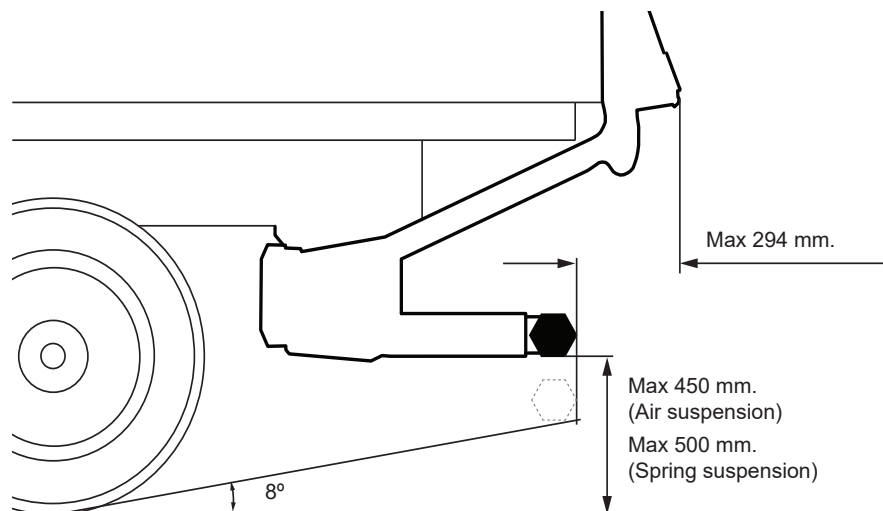


Image 8. Statutory dimensions

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

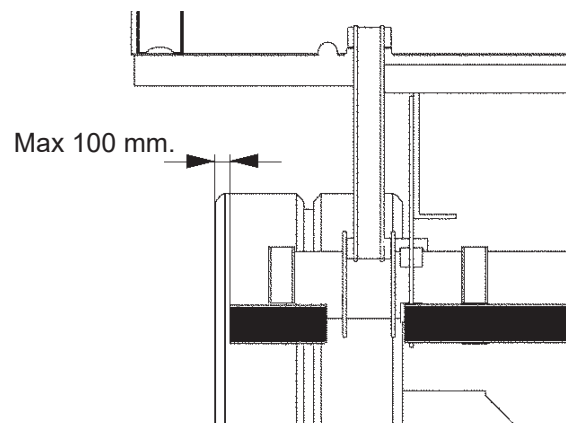


Image 9. Statutory dimensions

- The lateral distance between the underrun protection and the moving parts of the tail lift must not exceed 25 mm. See illustration.
- Each of the individual parts of the underrun protection must have a surface area of at least 350 cm². See illustration.

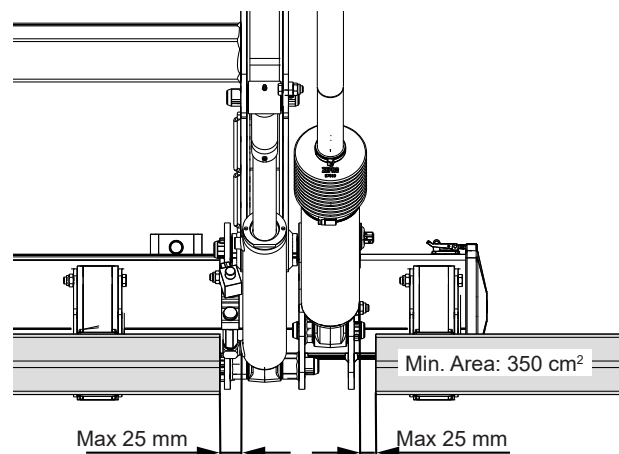


Image 10. Statutory dimensions

3.3 Calculating the installed dimensions

For easier installation it is useful to calculate and specify the necessary dimensions in advance. Determine the C dimension first, then obtain the other dimensions from the relevant table. You should try to place the lift as high as possible within the specified C dimension 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 governs how far the lift needs to be installed under the vehicle body (D dimension) and the space there will be between the lift arms in the upper position and the vehicle floor level (A dimension).

3.3.2 D dimension

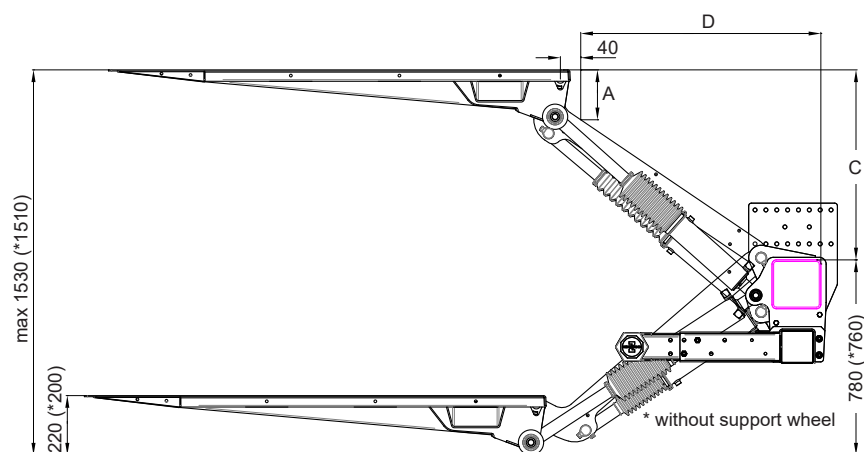
The D dimension is the space the lift needs, measured from the rear edge of the body to the front edge of the support frame (in the direction of the vehicle). Once the C dimension is determined, the D dimension can be obtained from the table.

3.3.3 A dimension

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

3.3.4 H dimension

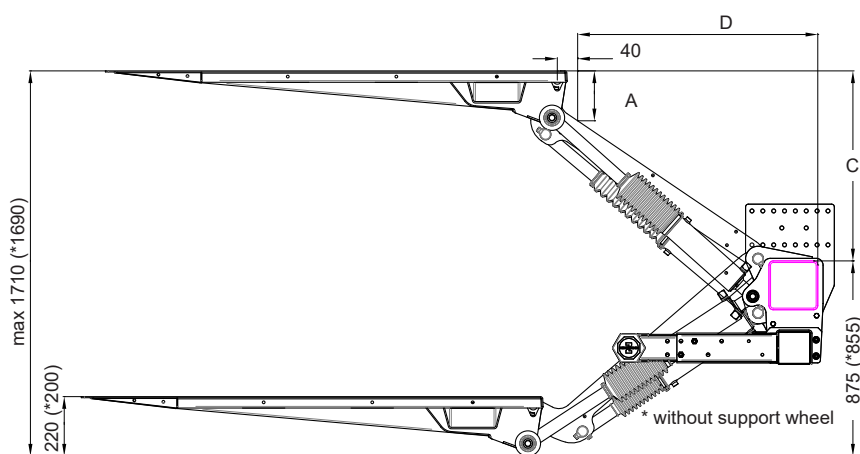
The H dimension is the height from the ground (unloaded) to the vehicle floor level. The H dimension must not be greater than the maximum lifting height of the lift. The platform must always be able to reach ground level.



C	A	D	R58:3
750	229	651	Approved
700	206	714	
650	189	767	
600	176	812	
550	165	851	
500	155	885	
450	147	913	
404	142	936	

395	140	940	
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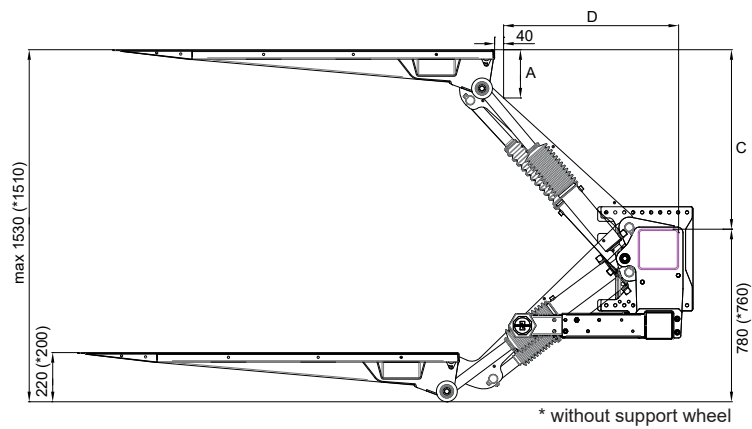
Image 11. ZAHD 150/200-155



C	A	D	R58:3
835	230	736	Approved
800	215	780	
750	198	835	
700	185	883	
650	174	925	
637	172	936	

600	165	961	
550	156	993	
500	149	1021	
435	141	1052	

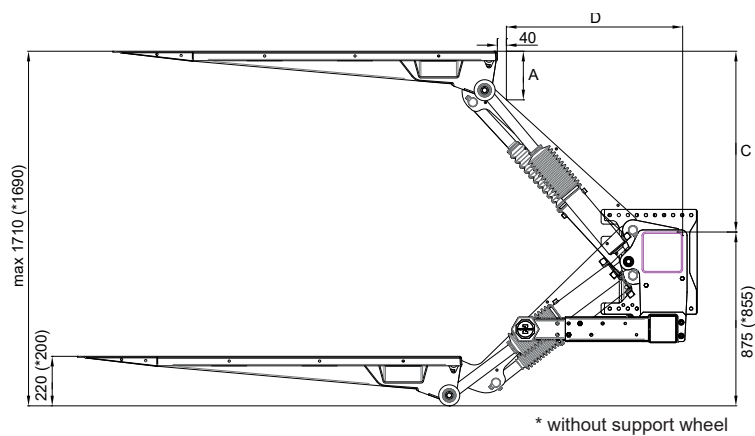
Image 12. ZAHD 150/200-175



C	A	D	R58:3
750	229	651	Approved
700	206	714	
650	189	767	
600	176	812	
571	171	836	

550	165	851	
500	155	885	
450	147	913	
395	140	940	

Image 13. ZAEHD 150/200-155



C	A	D	R58:3
835	230	736	Approved
800	215	780	
750	198	835	
700	185	883	
650	174	925	
637	172	936	

600	165	961	
550	156	993	
500	149	1021	
435	141	1052	

Image 14. ZAEHD 150/200-175

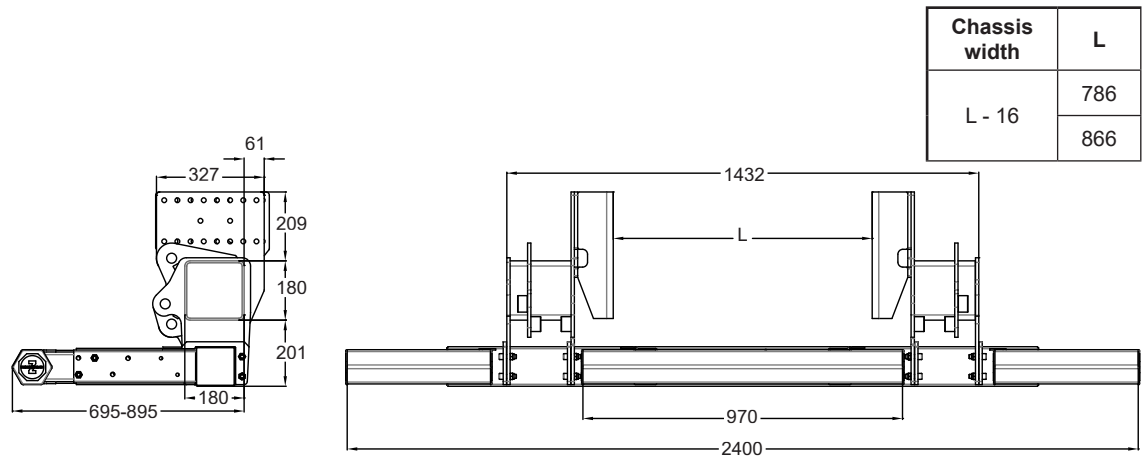


Image 15. ZAHD 150/200

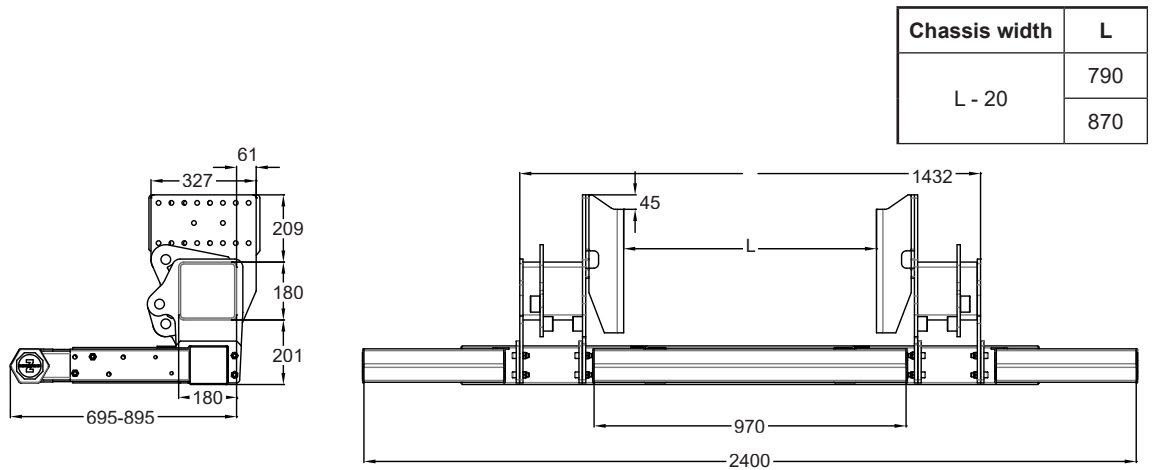


Image 16. ZAHD 150/200

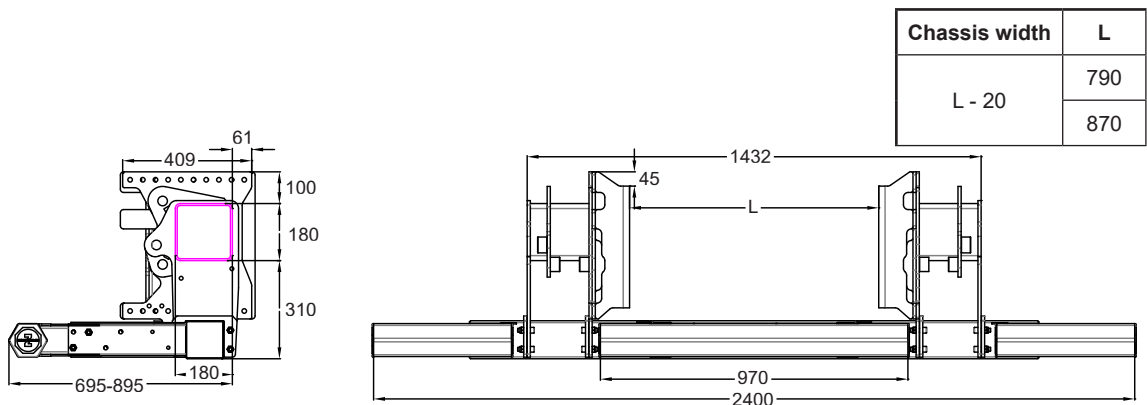


Image 17. ZAEHD 150/200 elevated

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

3.4 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 burr or sharp edges.

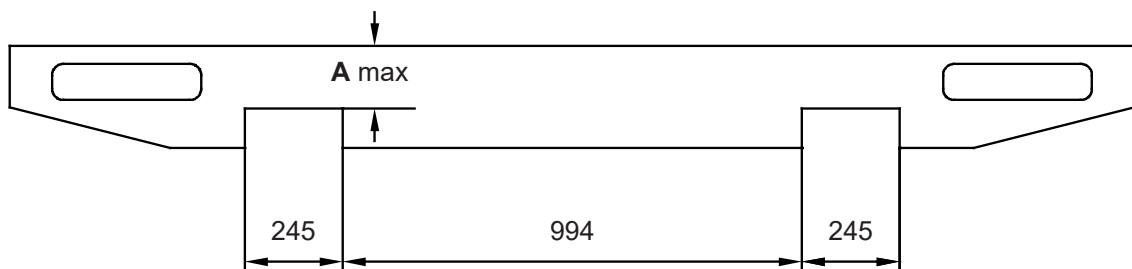


Image 18. Rear beam cut outs

3.5 Prepare the tail lift

1. Position the support frame under the vehicle chassis.
2. Remove the connection unit cover, secured with four screws, see Image 19.

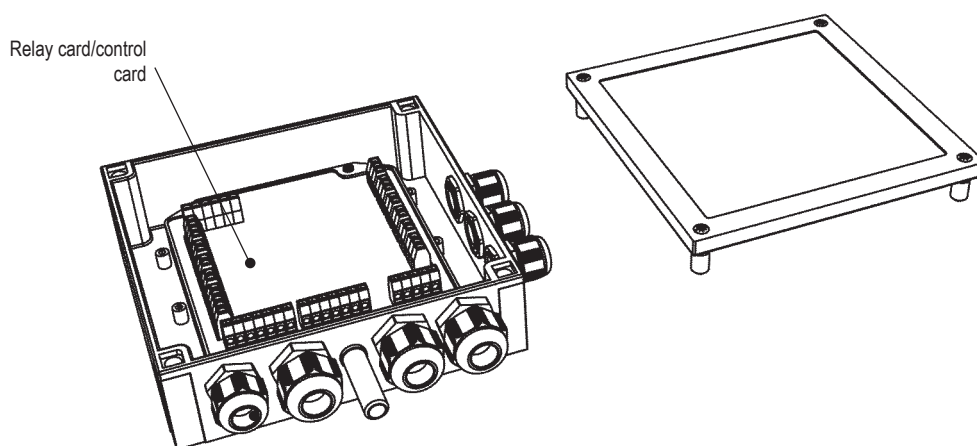


Image 19. Connection unit

3. Check whether the hydraulic tank is fitted with a sealed transport plug. In this case, replace it with the regular tank cap supplied.

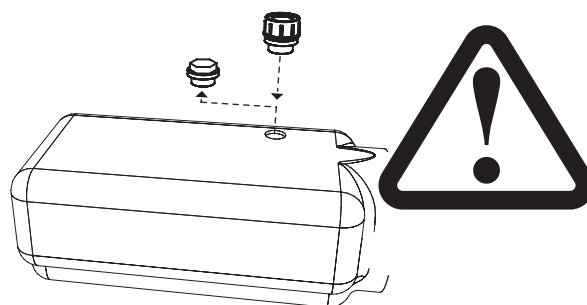


Image 20. Where necessary, replace the transport plug with a regular tank cap

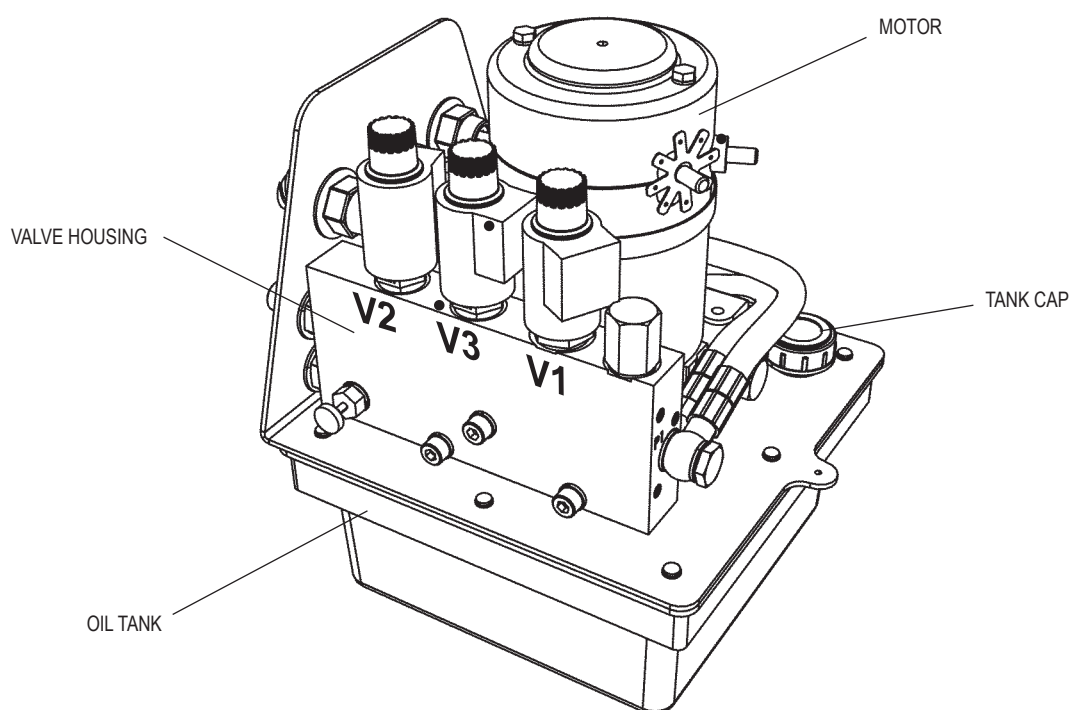


Image 21. Hydraulic unit

3.6 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 3.6.2/3.6.3.
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.

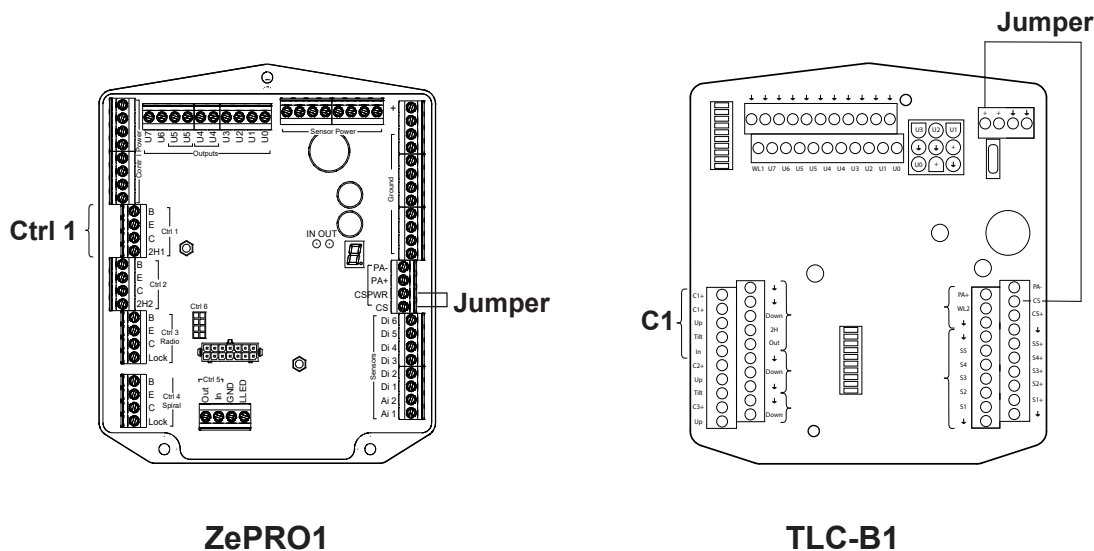


Image 22. Temporary connection

3.6.1 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!

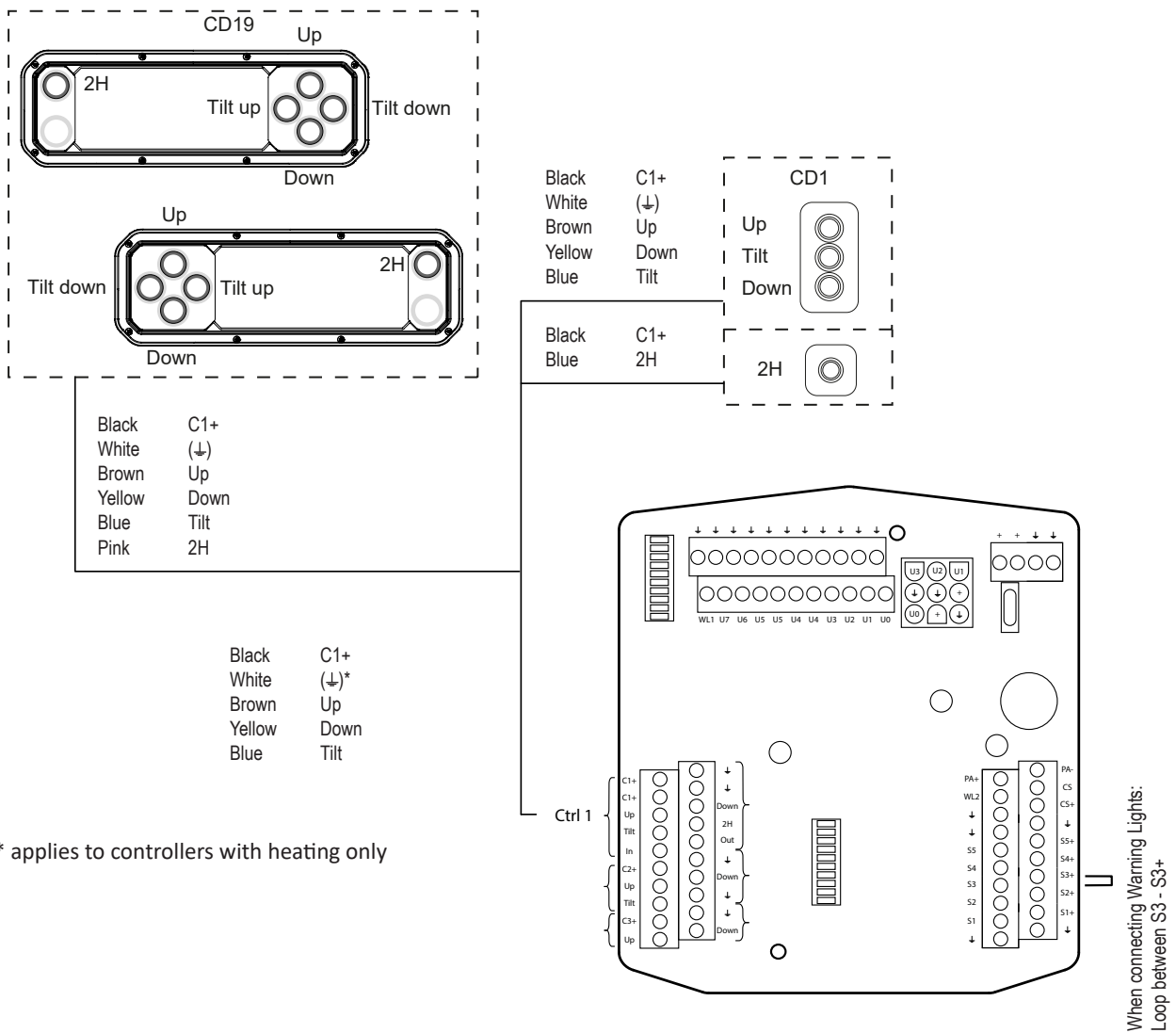
The battery charger must not be connected when operating the lift. Risk of material damage.

3.6.2 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.

⚠ WARNING!

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

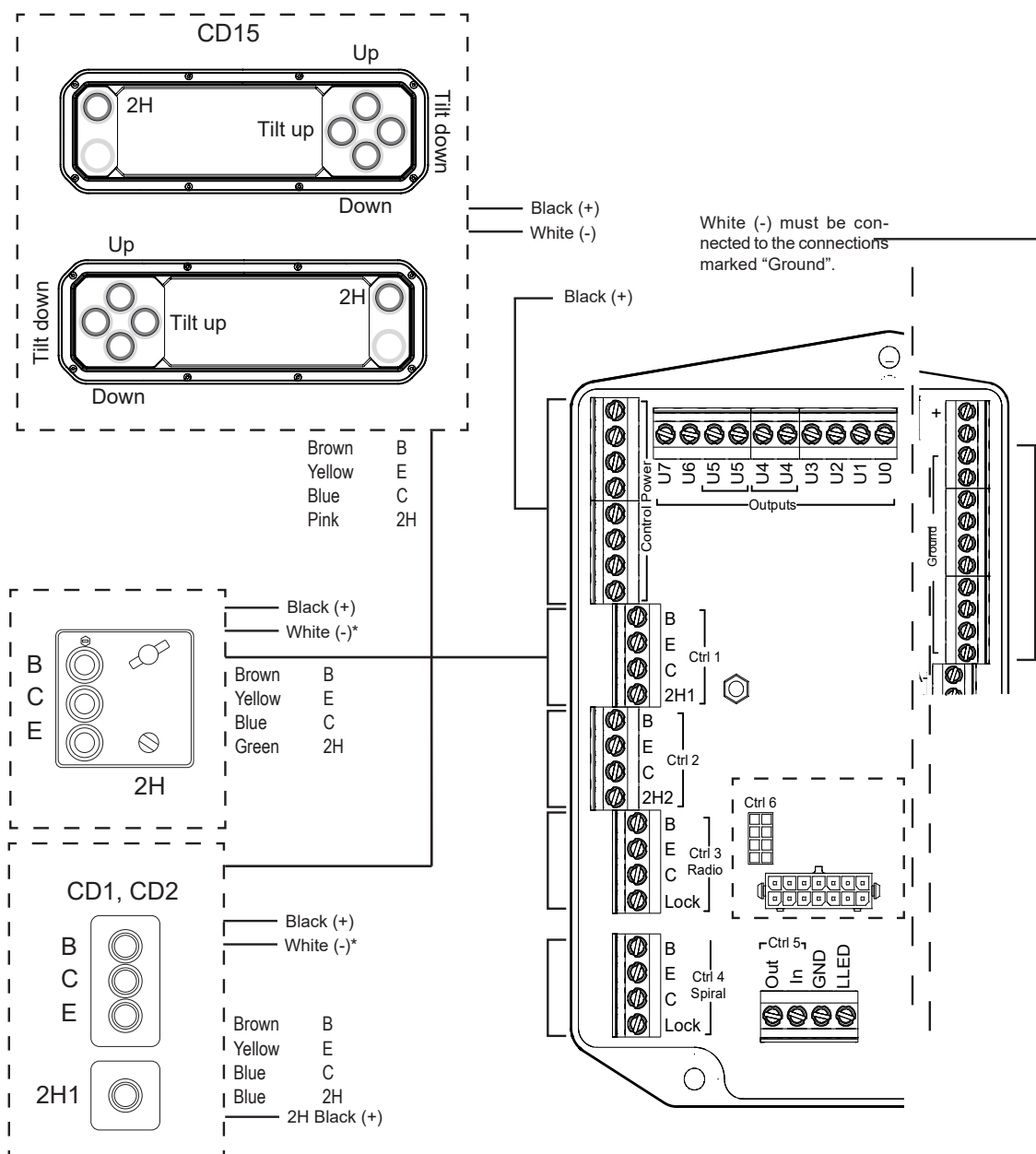


3.6.3 Connecting the control device to the ZePRO1 control card

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

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.

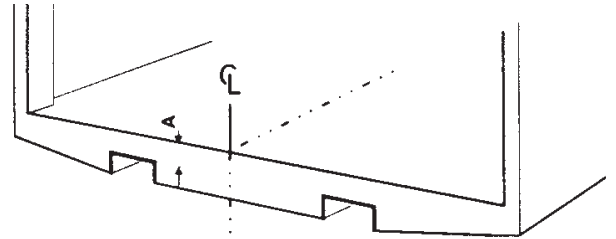


Image 23. Measure and mark the mid-point of the rear beam of the trailer

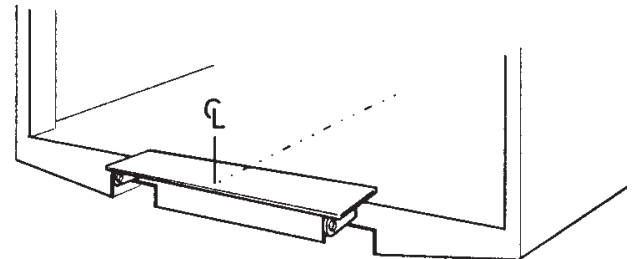


Image 24. Bolt or spot-weld the mounting jig to the rear beam. Art.no. 51724TL

4.1 Support Frame

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. 51724) to the rear beam so that both mid-points match. See illustration.
3. Position the support frame under the trailer chassis.
4. Raise the lift arms to the highest position.
5. Attach the lift arms to the eye of the jig. Use the normal bolts of the steel platform.
6. The support frame should be positioned as high as possible within the specified C dimension. Adjust the frame to the ideal height under the trailer chassis. Use the lift's packaging and a forklift. See "Image 25. Use the lift's packaging and a forklift." on page 21

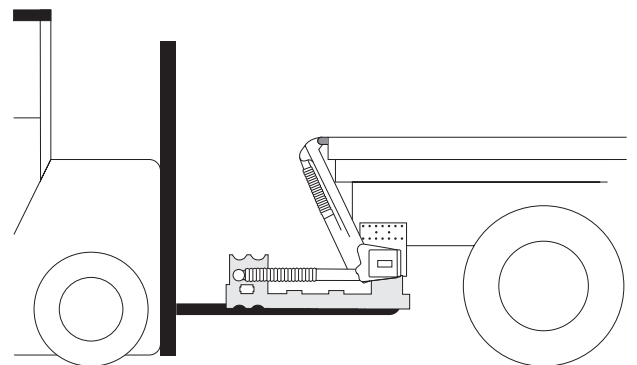


Image 25. Use the lift's packaging and a forklift.

7. Align and install the chassis brackets on the vehicle chassis. Install with at least 3 x M14x45 10.9 bolts at the front and rear edges of the bracket. Install with the nut on the inside of the vehicle chassis, see Image 26. Tighten the bolts using a torque wrench. **Tightening torque: 115 Nm.**
8. Align and install the support frame on the chassis brackets. Install with at least 3 x M14x45 10.9 bolts in the upper and lower rows of holes. The distance between the outer bolts must be at least 200 mm, see Image 28. Install with the nut on the inside of the bracket, see Image 27. The chassis brackets' slot-shaped holes facilitate fine adjustment of the lift's position. Perform fine adjustment if necessary before tightening the bolts.

NOTE!

Some mounting kits contain spacers. If required for proper installation, place a spacer between the chassis bracket and the support frame on each side of the vehicle.

9. Tighten the bolts using a torque wrench. Tightening torque: 115 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.

10. Remove the mounting jig.

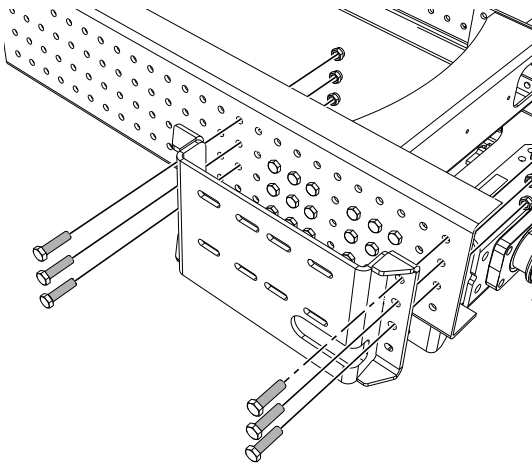


Image 26. Install the chassis bracket with at least 3 x M14x45 10.9 bolts at the front and rear edges of the bracket.

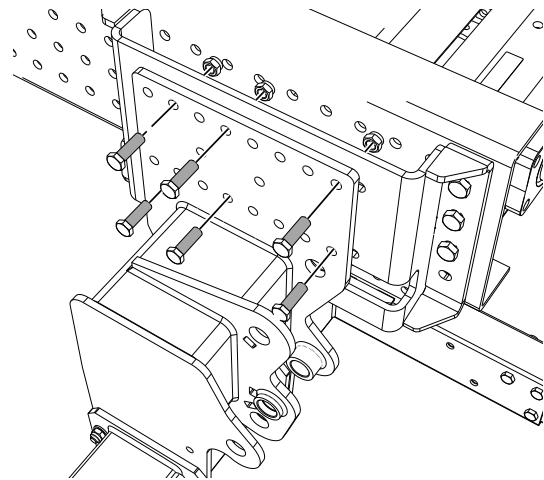


Image 27. Install the support frame with at least 3 x M14x45 10.9 bolts in the upper and lower rows of holes.

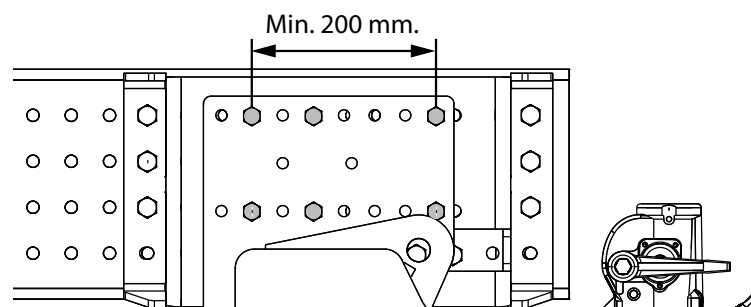


Image 28. The distance between the outer bolts must be at least 200 mm.

4.2 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 illustration. Use LE lubricant 4622 or the equivalent.

IMPORTANT!

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 "9 Lubrication and fluid level check" on page 56.

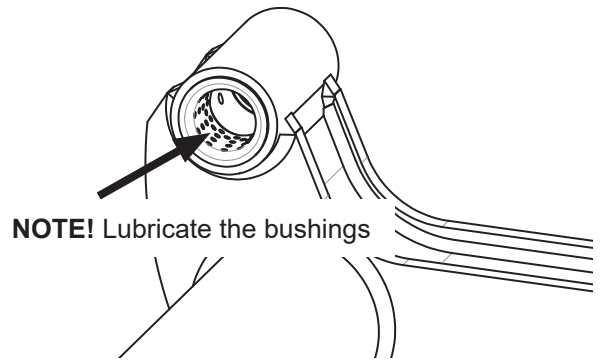


Image 29. Carefully lubricate the metal bushings

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

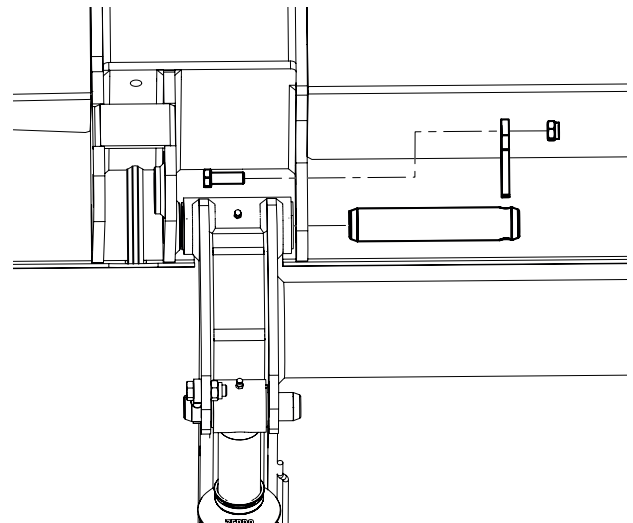


Image 30. Fitting the platform to the arms

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

IMPORTANT!

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

Tighten the bolt using a torque wrench.
Tightening torque: 80 Nm.

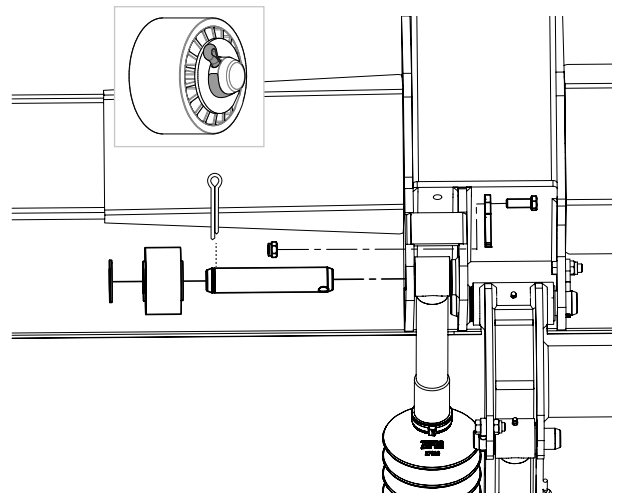


Image 31. Fitting the tilt cylinder to the platform

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 illustration.

NOTE!

When mounting with ZEPRO's stop strip, the distance between the rear edge of the bridge and the vehicle body must be 38-40 mm.

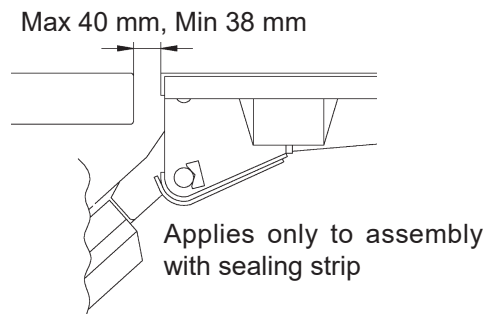
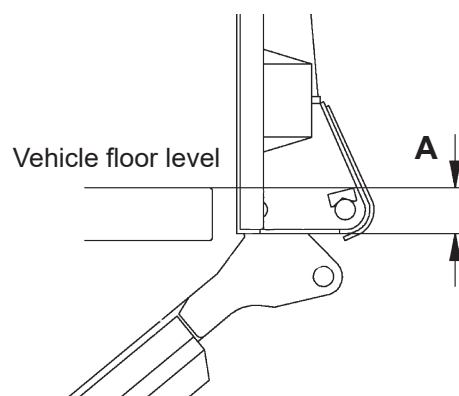


Image 32. Check the position in relation to the rear beam of the vehicle



Type	Steel	Flat 40 mm	
A (mm)	70	81	

Image 33. The platform underhang (A) varies according to platform type, and this should be taken into account when fitting the upper seal.

4.2.1 Adjusting the tilt angle

IMPORTANT!

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 cylinder fitted to the platform, see illustration.

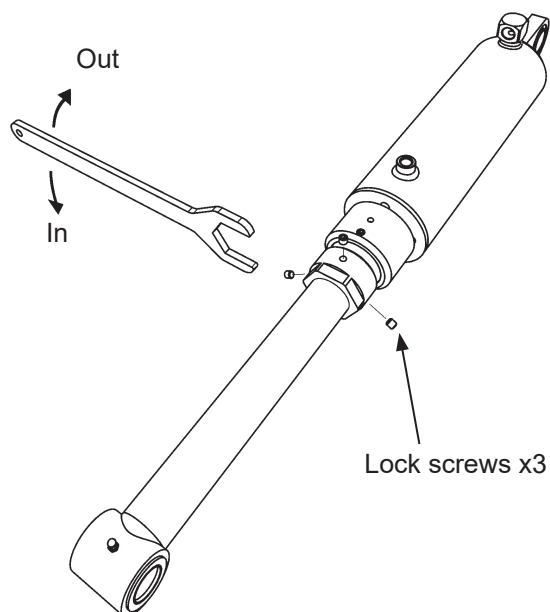


Image 34. Adjusting the tilt angle

4. Turn the adjusting collar so that the platform just meets the seal on the vehicle body, see Image 35 (A).

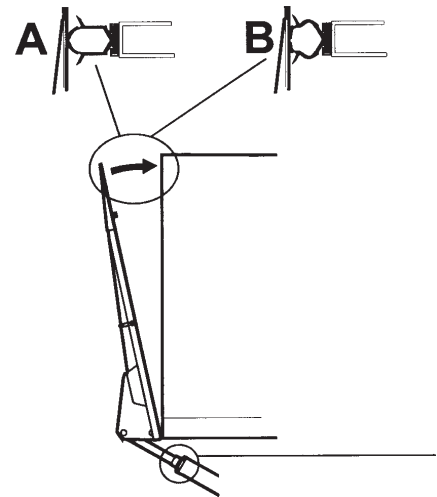


Image 35. Adjusting the fit with the vehicle body.

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

IMPORTANT!

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

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

IMPORTANT!

Make sure the cylinder is installed with the grease nipple facing up.

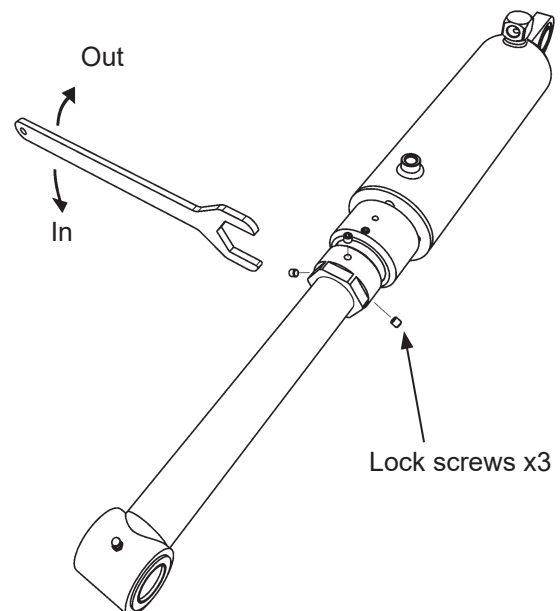


Image 36. Adjusting the tilt angle

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 35 (B).
10. Tighten the lock screws of the adjusting collar using a torque wrench **Tightening torque: 3-5 Nm.**

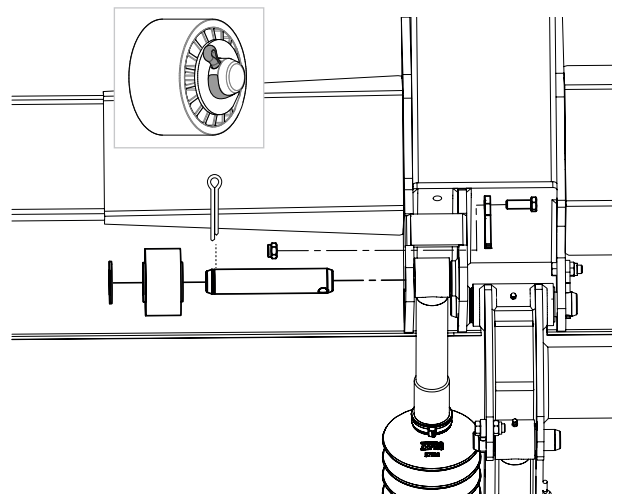


Image 37. Fitting the tilt cylinder to the platform

IMPORTANT!

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. Now alternate the final adjustment between the two cylinders so that the platform meets the vehicle body, see Image 39.

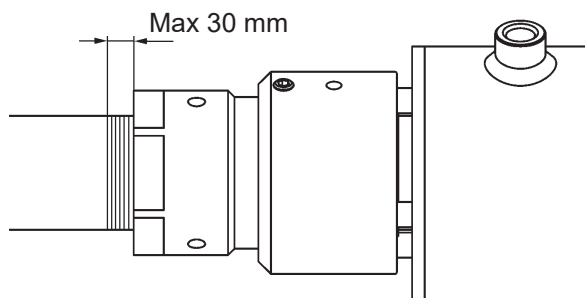


Image 38. Adjusting the tilt angle

Lift model	A
1500/2000-155	300 ±5
1500/2000-175	420 ±5

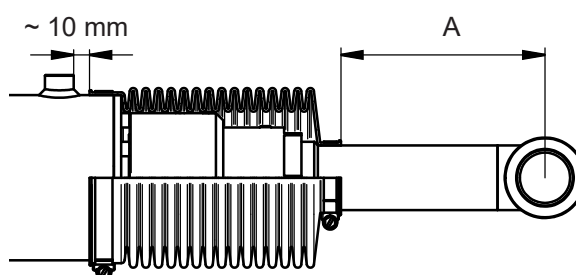


Image 39. Installing boots

4.2.2 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.

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

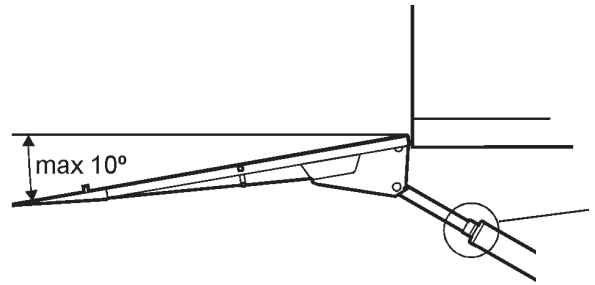


Image 40. The tilt angle must be adjusted to max. 10° down

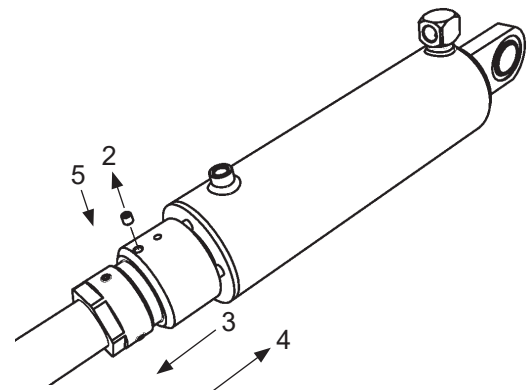


Image 41. End stop with lock screw

The tightening torque for lock screws is between 3-5 Nm.
Test all functions.



WARNING!

The tilt angle of both cylinders must be adjusted to be the same, otherwise they may be damaged.

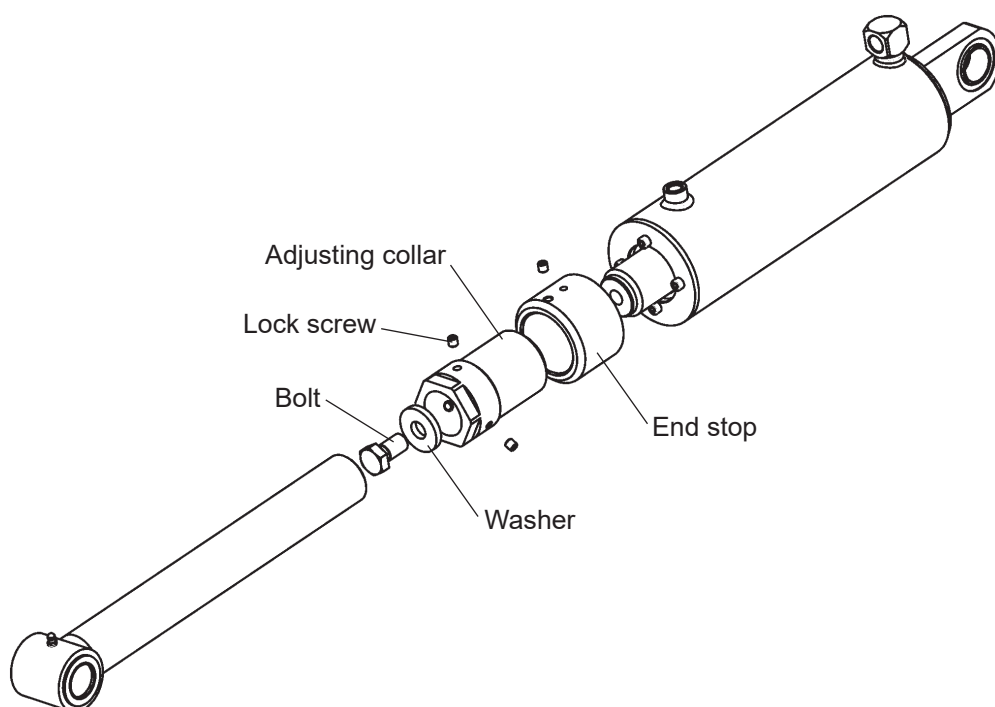


Image 42. Tilt cylinder

4.3 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.

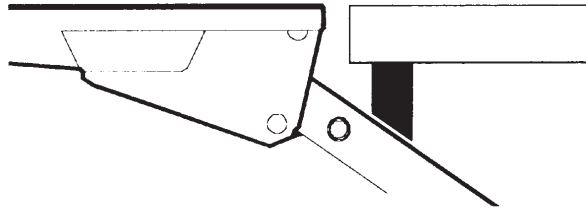


Image 44. Fit end stops between the lift arms and the rear member of the vehicle floor

4.4 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.

4.5 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.

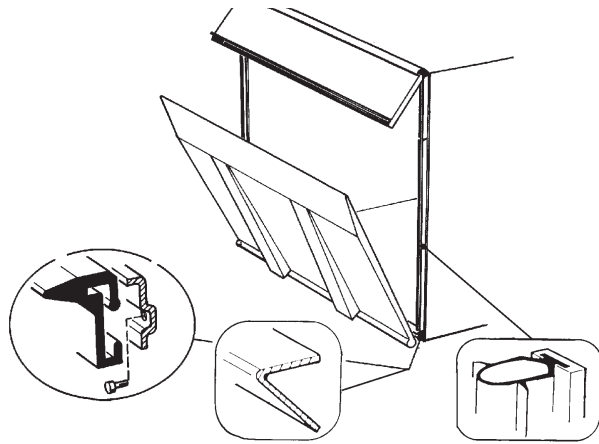


Image 43. Installing a sealing strip

4.6 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 outer part of each bracket at one of five positions. Select a position that meets the statutory requirements. Use the corresponding bolts M12x80. Install the screws in the hole pattern according to Image 45, at the far end of the lower row of holes and next to the far end in the upper one. Assemble without tightening the bolts.

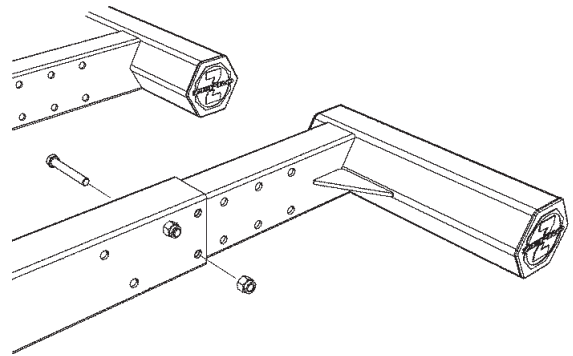


Image 45. Installing underrun protection

NOTE!

The underrun protection may be placed further back and lower.

2. Check that the installation meets the statutory requirements.
3. Tighten all the bolts using a torque wrench. **Tightening torque: 80 Nm.**
4. Fit the member 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.

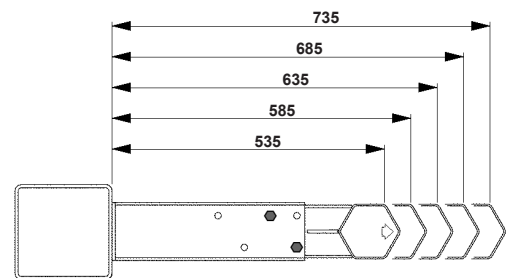


Image 46. The outer part of the brackets can be fitted in one of five positions

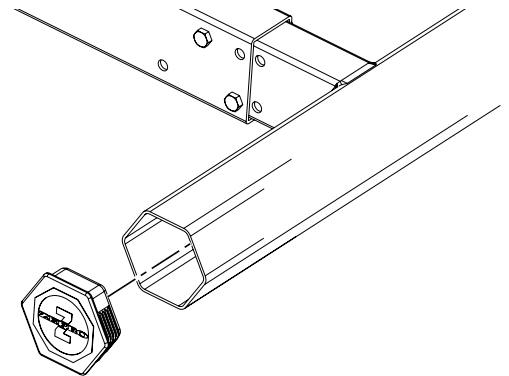


Image 47. Fit the member end caps

NOTE!

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

4.7 Angle sensor / Inclinator

4.7.1 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 48.
2. Connection is described later in section 6.

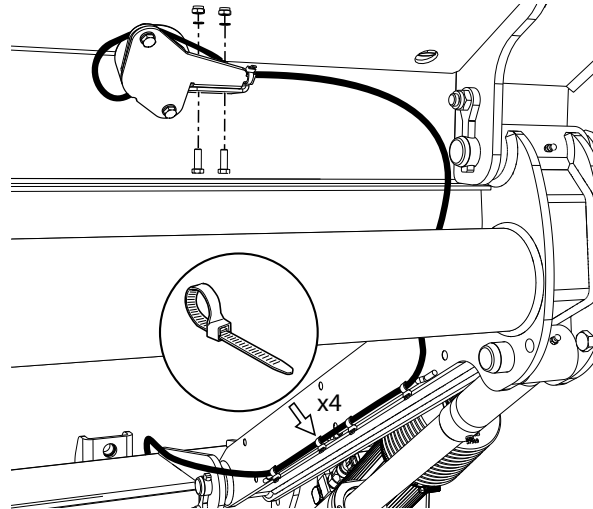


Image 48. Installing the angle sensor

4.7.2 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 49.
2. Connection is described later in section 6.

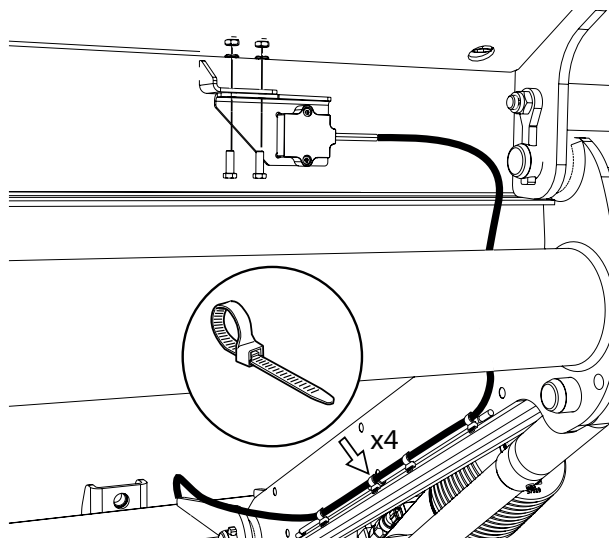


Image 49. Installing inclinometers

4.7.3 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 50
2. Route the cables and secure with cable ties.

Connection is described later in section 6.

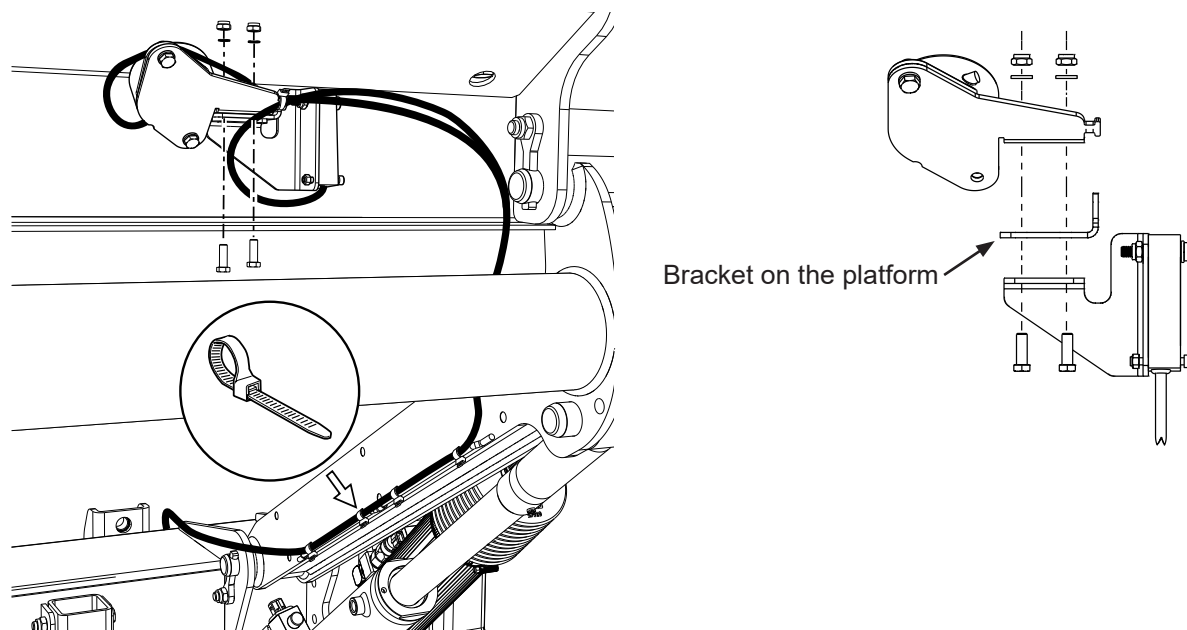


Image 50. Installing an angle sensor for auto tilt

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 51.
2. Adjust the position of the angle sensor to the desired angle, see Image 51.
3. Retighten the screws.

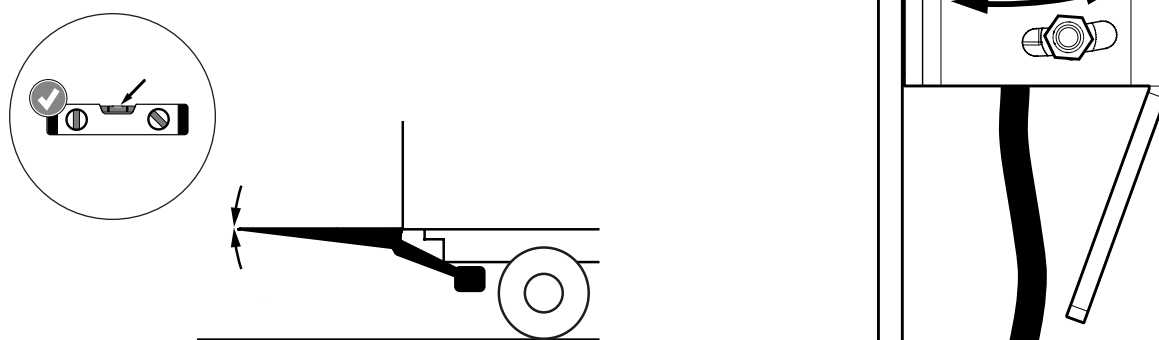


Image 51. Adjusting the autotilt angle

4.8 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.

The cable must not be fastened 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.

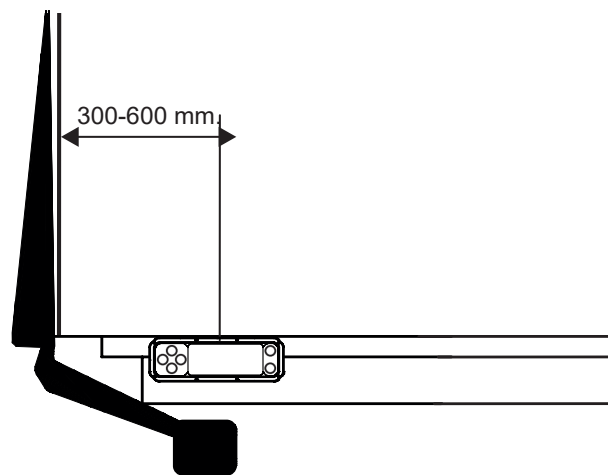


Image 52. Installing controllers

⚠ 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.

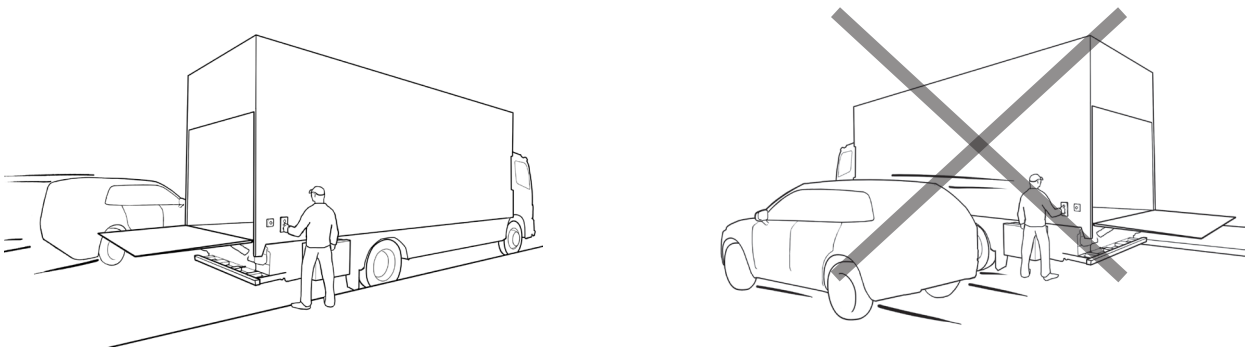


Image 53. Installing controllers

4.8.1 Controller 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 54.
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.

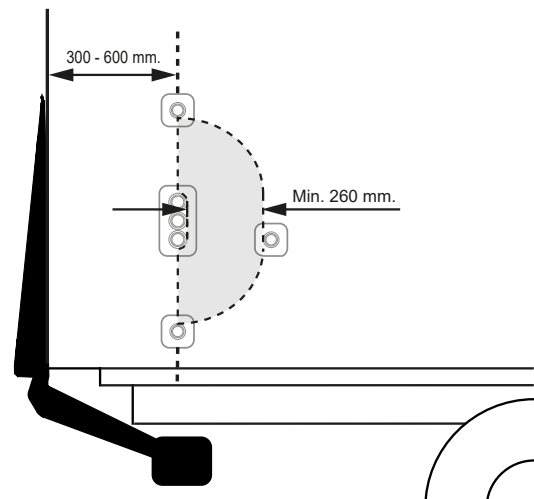


Image 54. Installing controller CD 1 with two-handed grip.

4.8.2 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 55
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 55
4. Carefully break off the outer part of the plug and

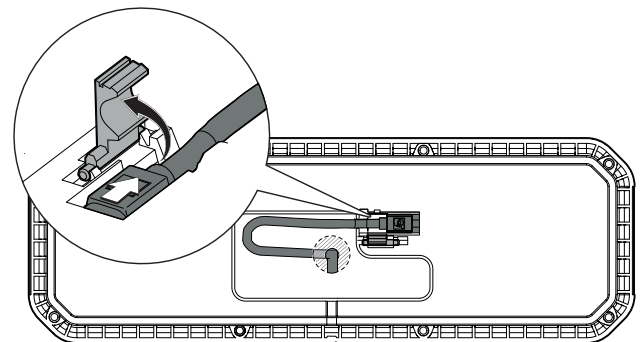
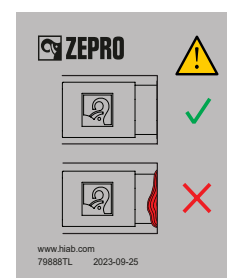


Image 55. Disconnecting the connector



NOTE!

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

place in the recess. See Image 56.

5. Then install the controller securely on the body. See Image 57

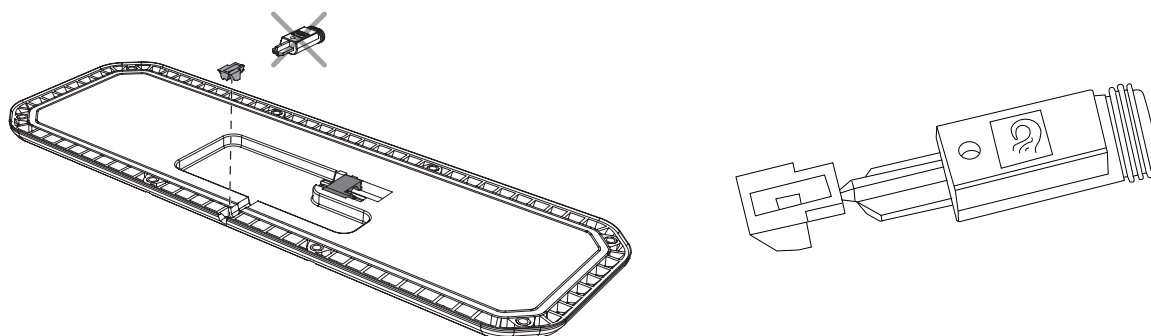


Image 56. Installation of plug for sealing UCU.

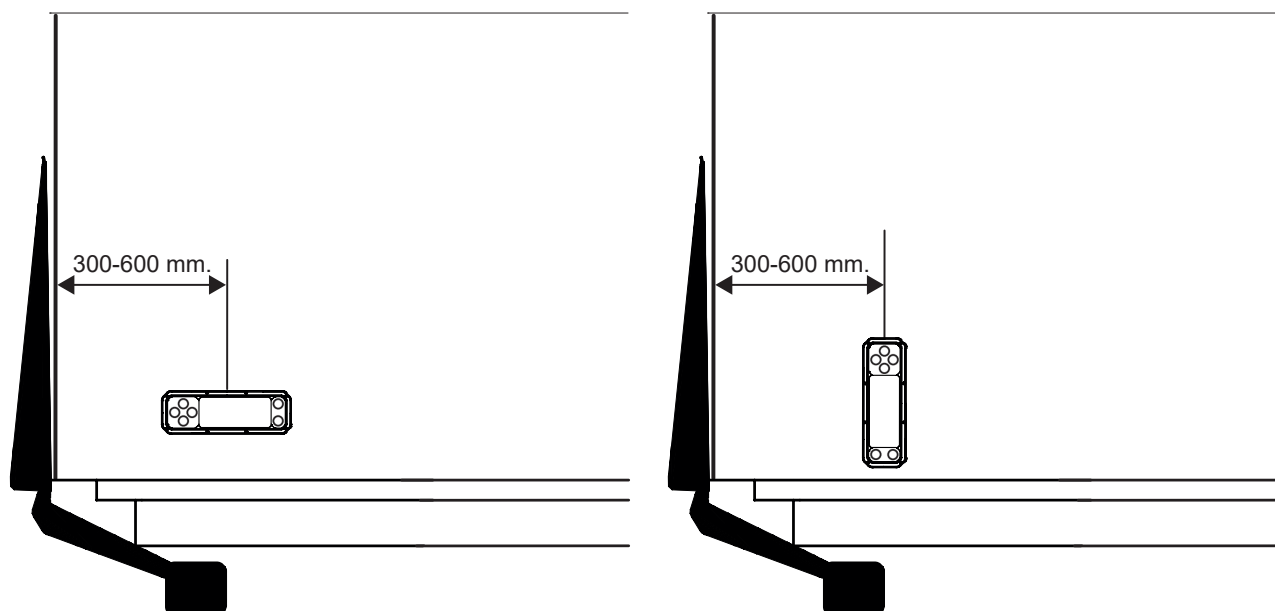


Image 57. Installing controllers

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 ground cable area may result in overheating, poor performance of the electrical system and shortened life expectancy of the main electrical components.

Earthing must not be made to anything other than the negative terminal of the battery. Risk of material damage.

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.

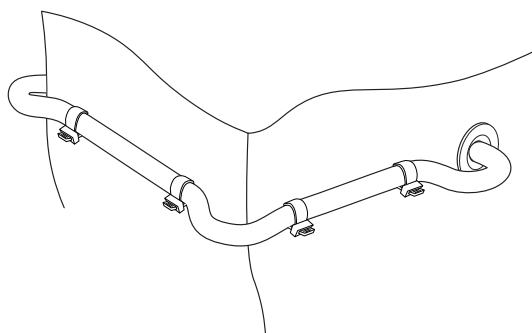


Image 58. Protect the cable against sharp edges and use cable grommets



Image 59. Always use shrink hose over the cable connection when fitting cable terminals

5.2 Maximum power consumption

ZAHD, ZAEHD 150/200-155/175 (200 bar)

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 cable	1.5 mm ²	1.5 mm ²
Main power cable, L ≤ 6 m	35 mm ²	35 mm ²
Main power cable, L = 6 - 8 m	50 mm ²	35 mm ²
Main power cable, L = 8 - 15 m	50 mm ² *	35 mm ²
Main power cable, L > 15 m	50 mm ² *	50 mm ²
Battery		
Min. capacity, I_{min} (available for lift)	180 Ah	180 Ah
Min. voltage during operation, U_{min} (at lift)	9 Volts	18 Volts

*** 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.

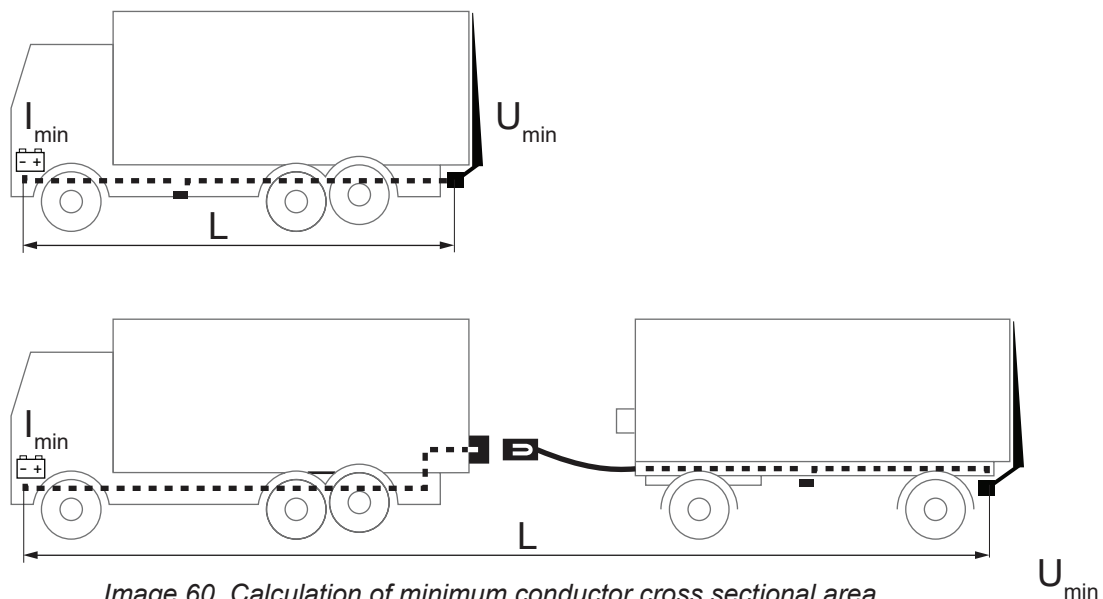


Image 60. Calculation of minimum conductor cross sectional area

5.3 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.

5.4 Platform tilt speed

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

5.4.1 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.

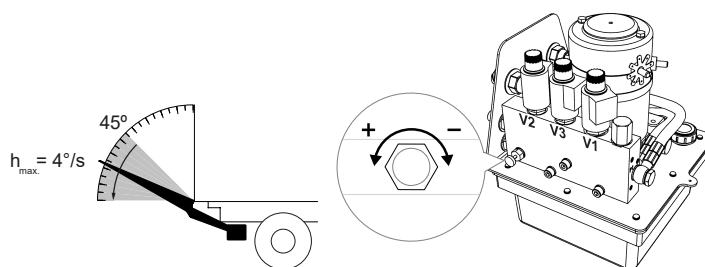


Image 61. Setting the tilt speed downwards within the working range (from 45° downwards)

5.4.2 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.

5.5 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 place 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. 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 the tail lift earth cable to the negative battery terminal. Fit cable terminal and shrink hose to the cable and connect.

IMPORTANT!

Earth connection must not be made to anything other than the negative terminal of the battery. Risk of material damage.

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.

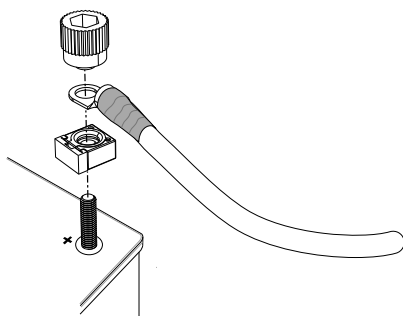


Image 62. Connection to the battery's positive terminal

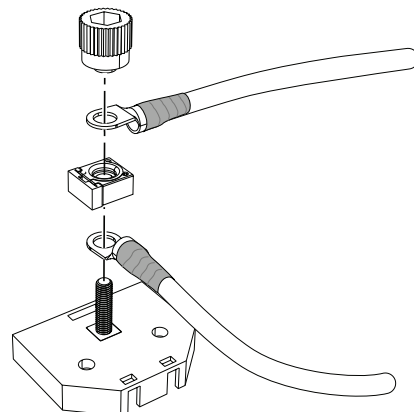


Image 63. Connection to the fuse box

5.5.1 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 64 and Image 65.

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.

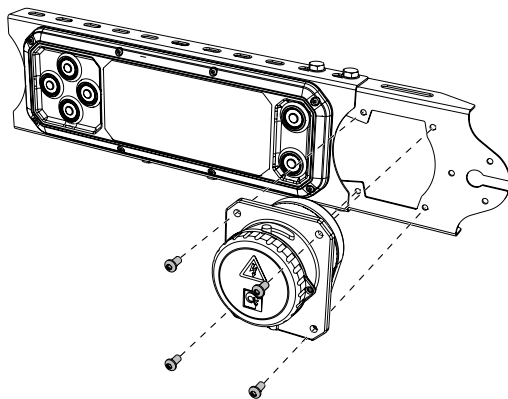


Image 64. Installation of main switch to CD 19 controller

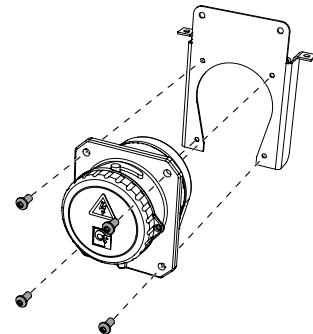


Image 65. Installation of main switch on universal bracket

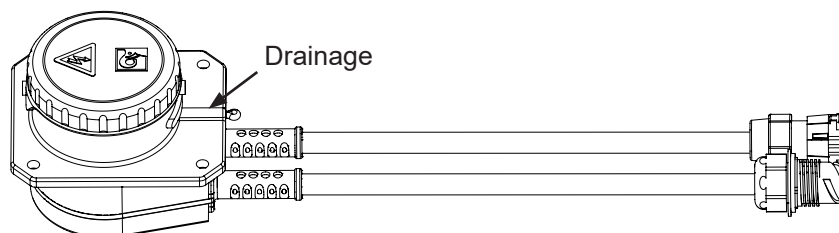


Image 66. Main power switch

5.6 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.

5.7 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.

5.8 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 67 and Image 68. 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 69.
3. Measure the same distance (A) on the lift arm; see Image 69.
4. Then place the quick connector at least 100 mm outside or inside the measured point (A); see Image 69.

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.

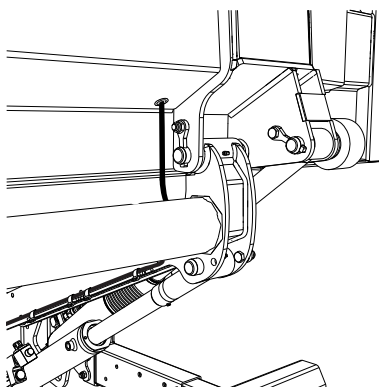


Image 67. Installing cabling

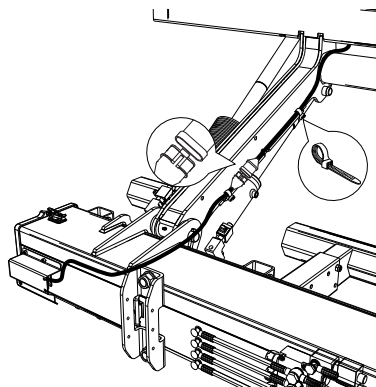


Image 68. Installing cabling

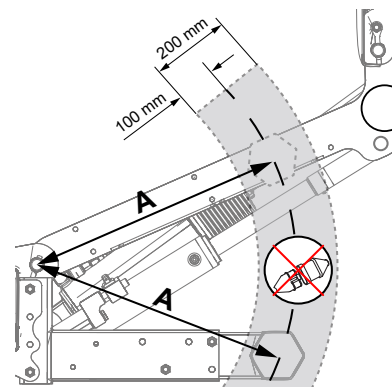


Image 69. Quick connector location

6 Connection

6.1 Connection unit

6.1.1 Before connection

1. Remove the connection unit cover, secured with four screws, see Image 70.
2. Loosen the unused cable grommets. Cables can now be installed/removed/adjusted in the grommets.

6.1.2 After connection

1. Tighten the cable grommets when all the cables are in a suitable position.
2. Replace the connection unit cover, see Image 70.

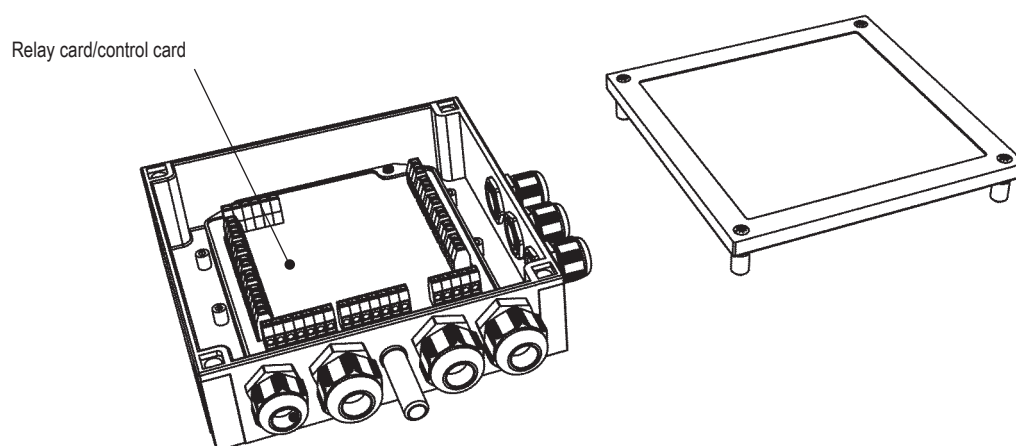


Image 70. Connection unit

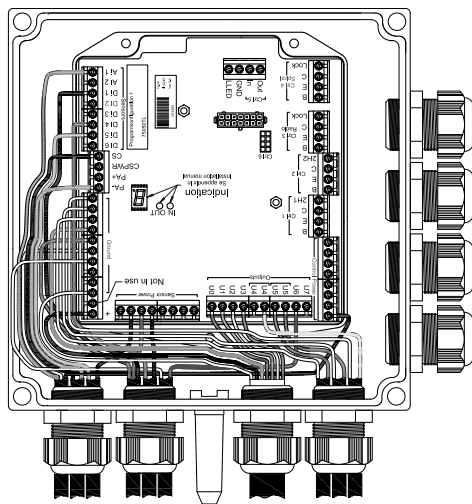
6.2 Connection

IMPORTANT!

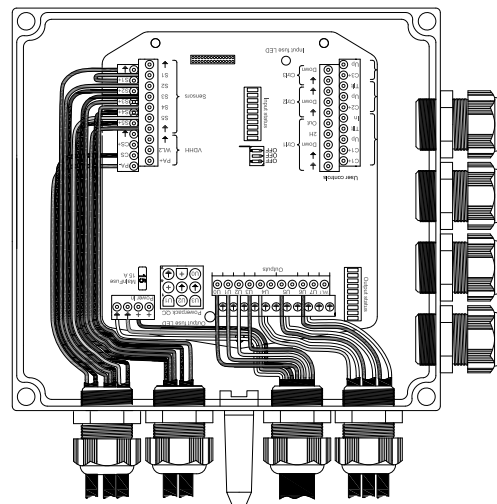
Make sure that the relay card/control card is disconnected from the power before connecting peripheral equipment. Risk of material damage.

1. Route the cabling through the grommets.
2. Connect the relevant controller. See Section 6.2.1 - 6.2.2.
3. Where applicable, connect the warning lights. See Section 6.2.3 - 6.2.4.
4. Where appropriate, plug in cab switch (CS) and open platform alarm. See section 6.2.5 -6.2.7.
5. Replace the cable grommets and connection unit, see section 6.1.2.

ZePRO1



TLC-B1

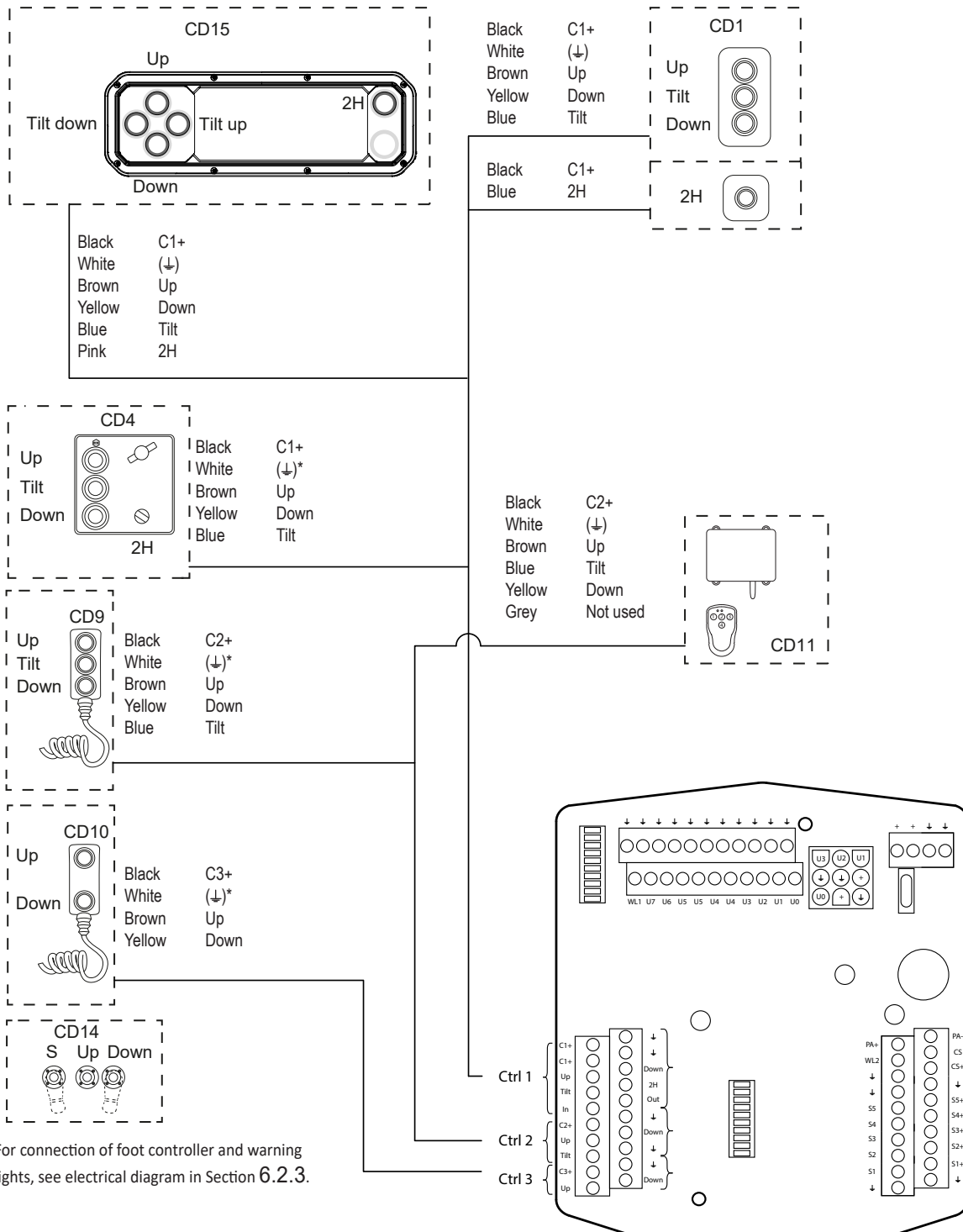


6.2.1 Controller (TLC-B1)

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.



For connection of foot controller and warning lights, see electrical diagram in Section 6.2.3.

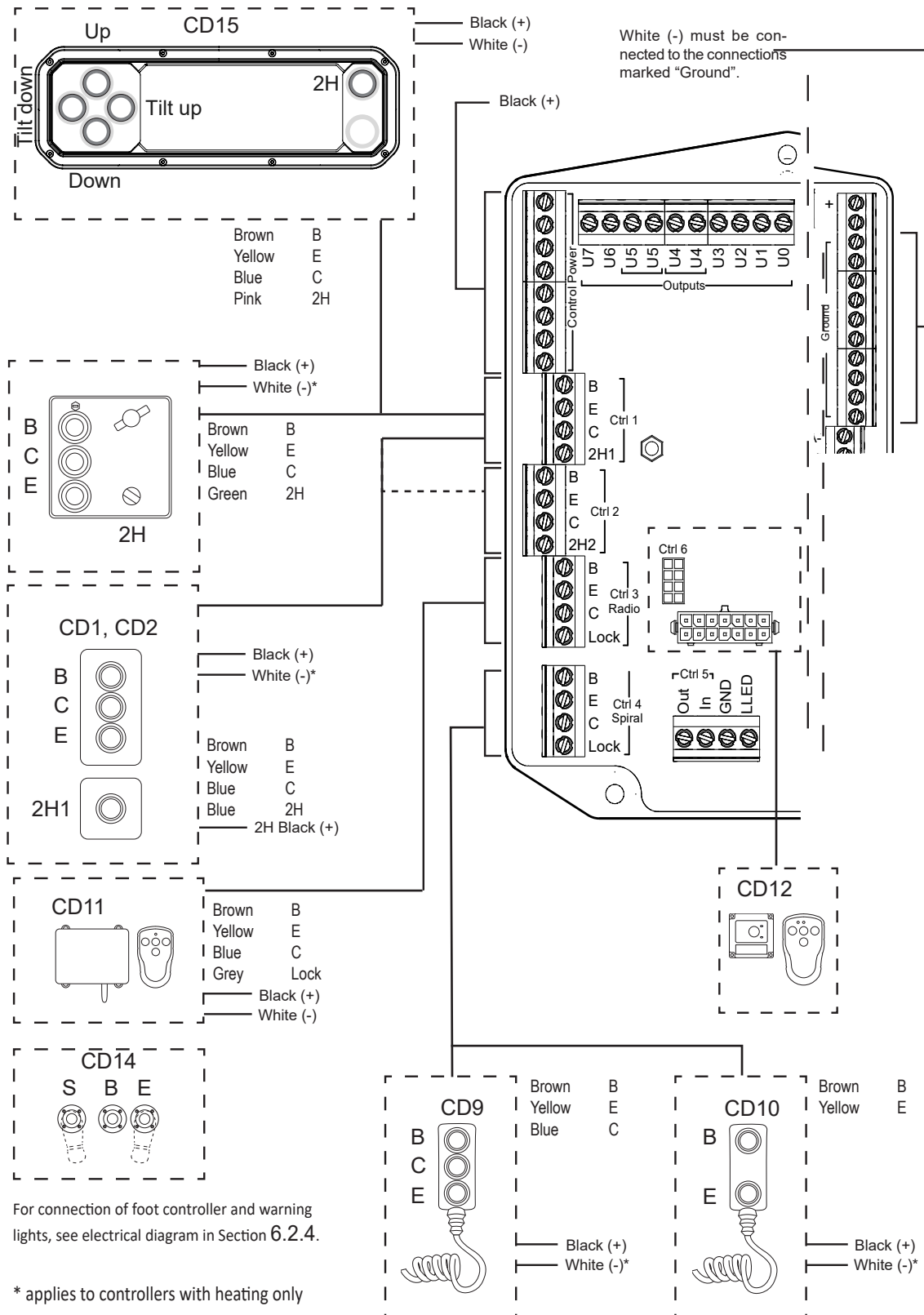
* applies to controllers with heating only

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.

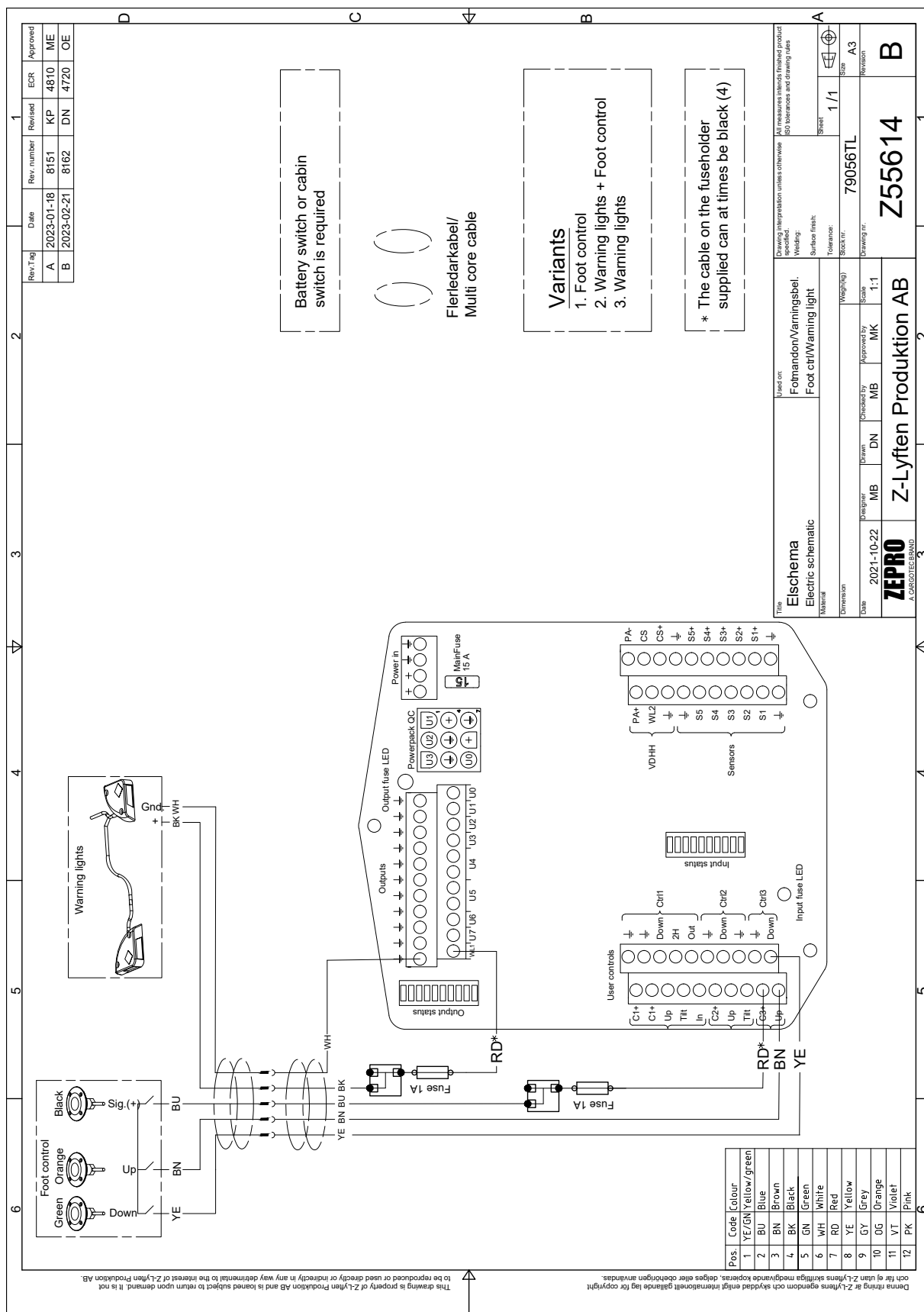
⚠ WARNING!

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.

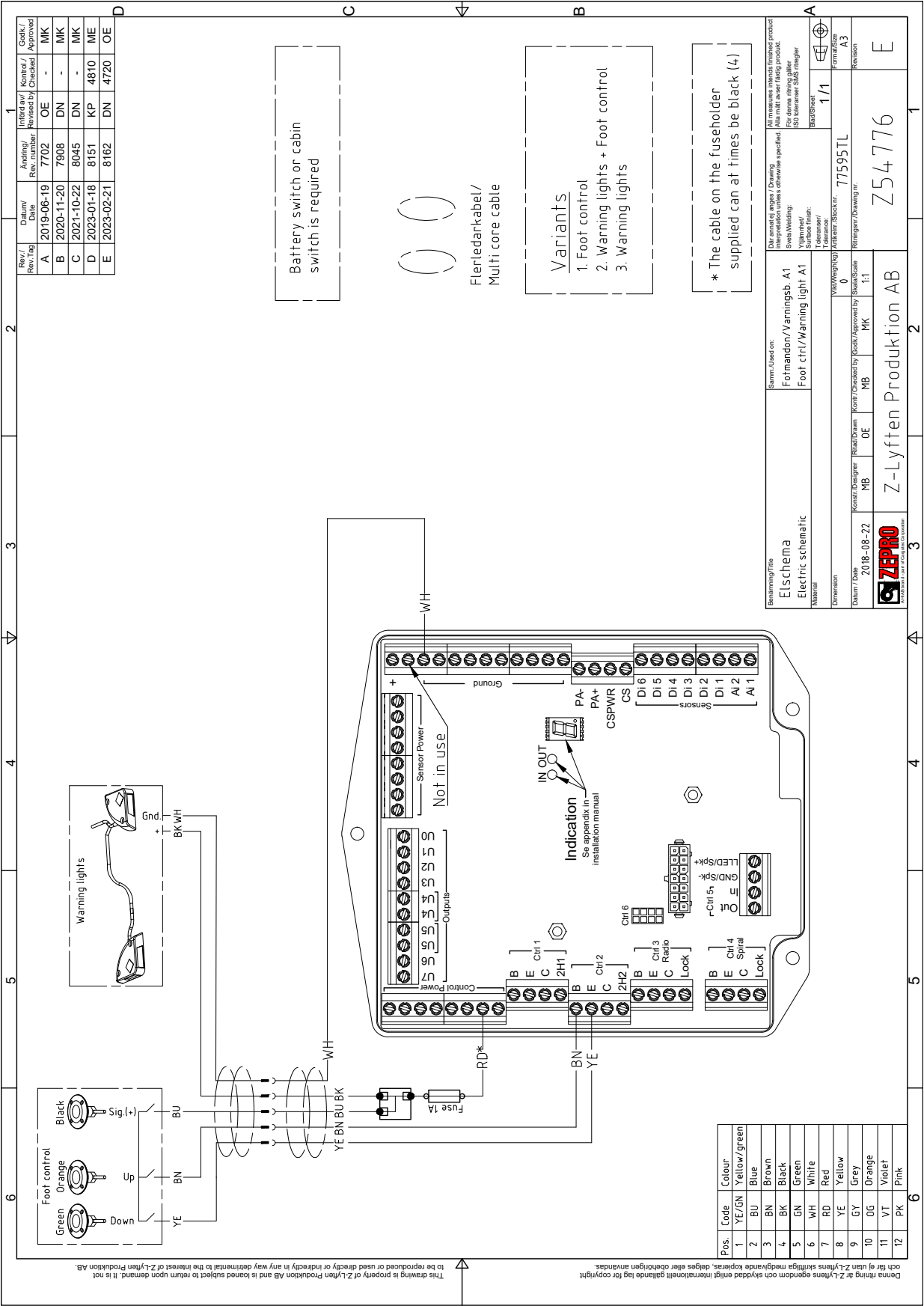


6.2.3 Warning light and foot controller (TLC-B1)

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

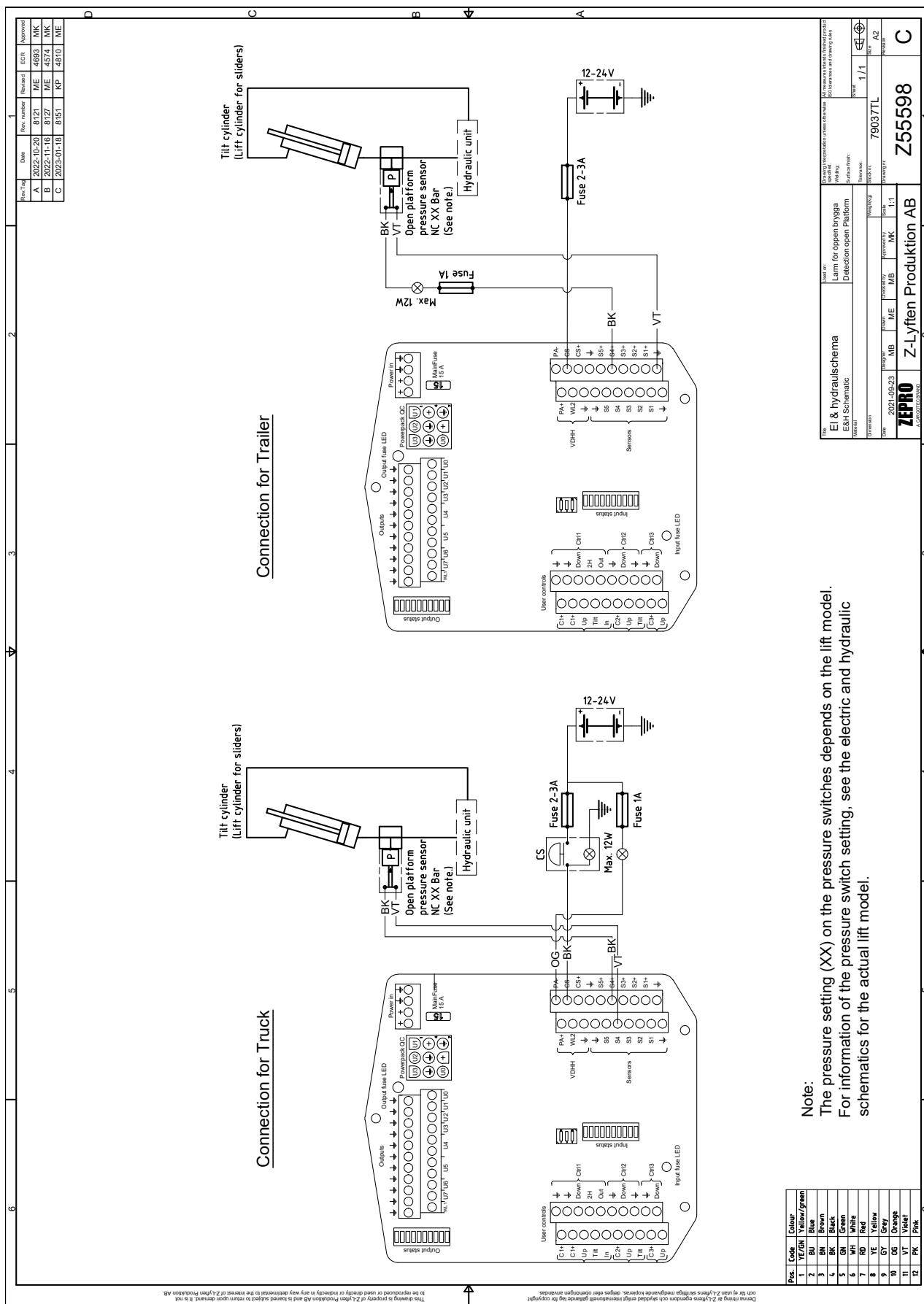


6.2.4 Warning lights and foot controls (ZePRO1)



6.2.5 Cab switch and open platform alarm (TLC-B1)

Applies when installing without main switch

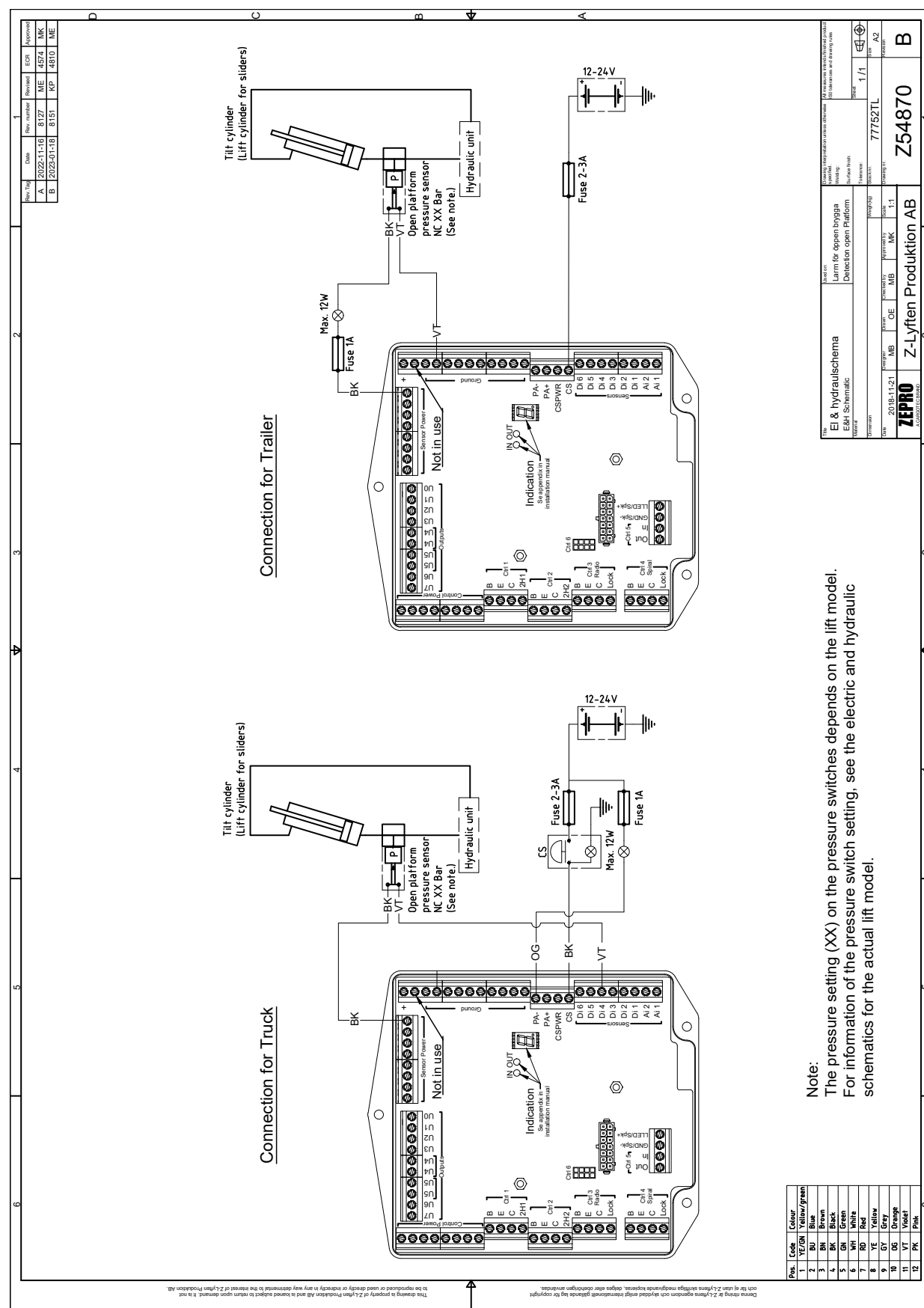


Note:

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 Cab switch and open platform alarm (ZePRO01)

Applies when installing without main switch

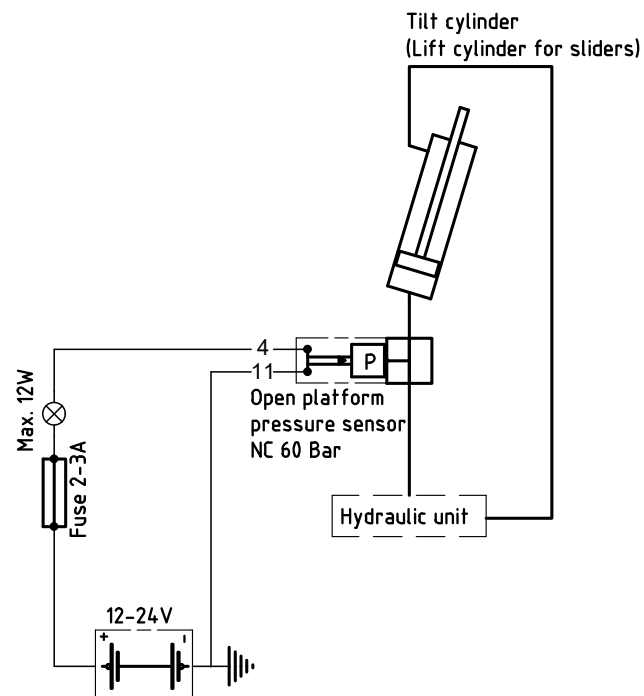


Note:

For information on the pressure switch setting, see the electric and hydraulic schematics for the actual lift model.

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 71.
4. When connecting directly to the positive battery terminal, place the fuse (2) on the positive terminal, see Image 72.
5. Connect the main power cable (3) to the fuse box / positive terminal, see Image 71 - Image 72.
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 73 - Image 74.

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.

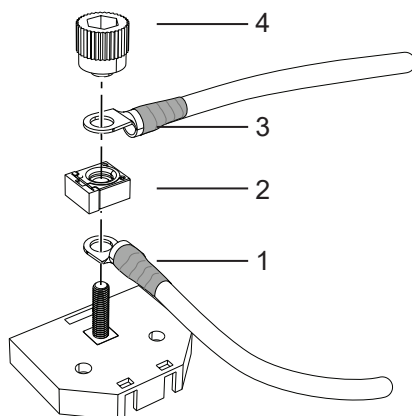


Image 71. Connection to the fuse box

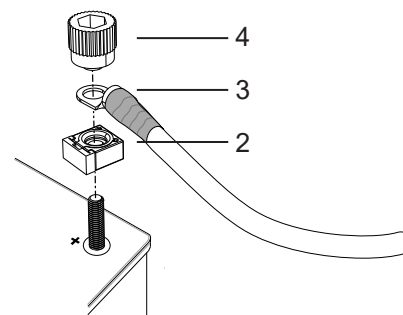


Image 72. Connection to the battery's positive terminal

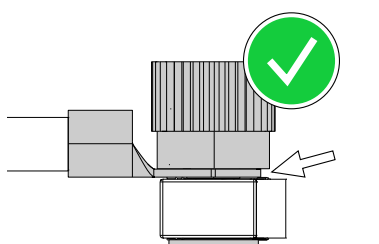


Image 73. Correct installation

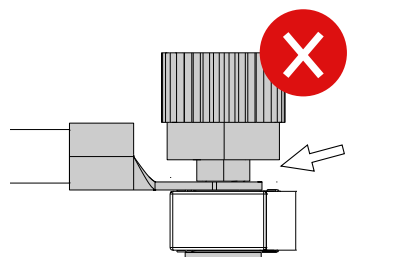


Image 74. Incorrect installation

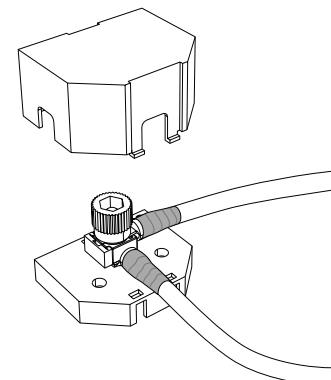
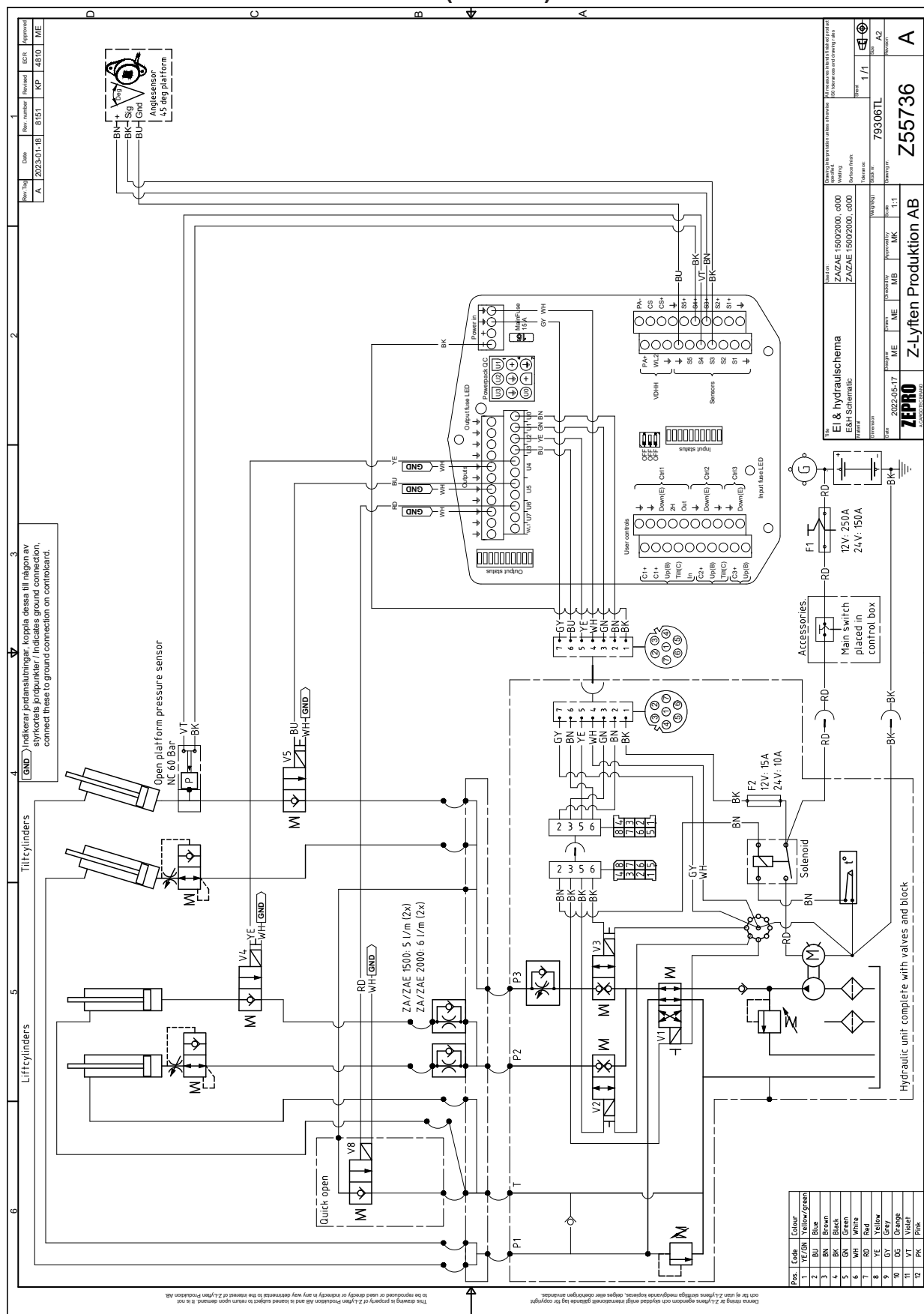


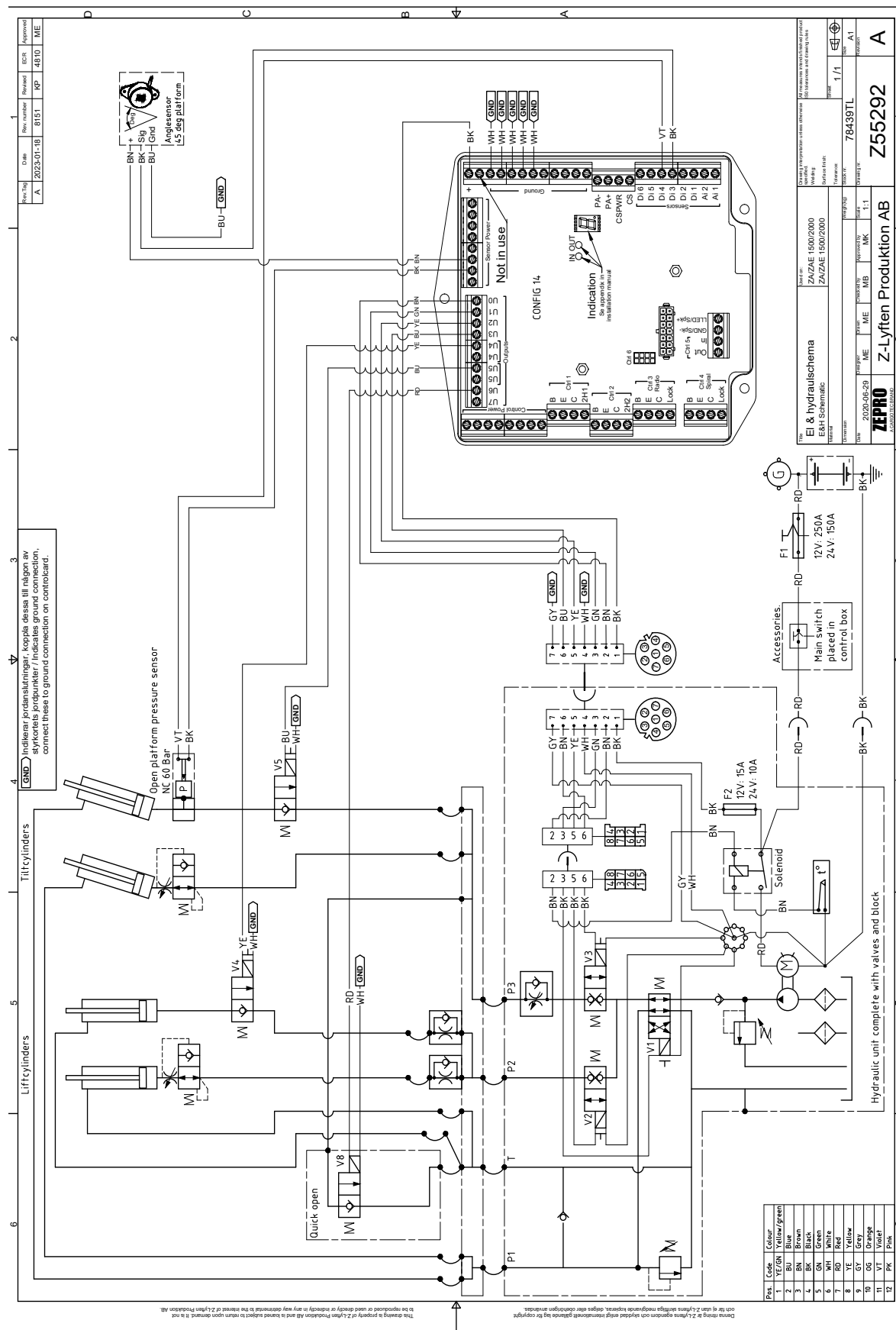
Image 75. Cover, fuse box

8 Electrical and hydraulic diagrams

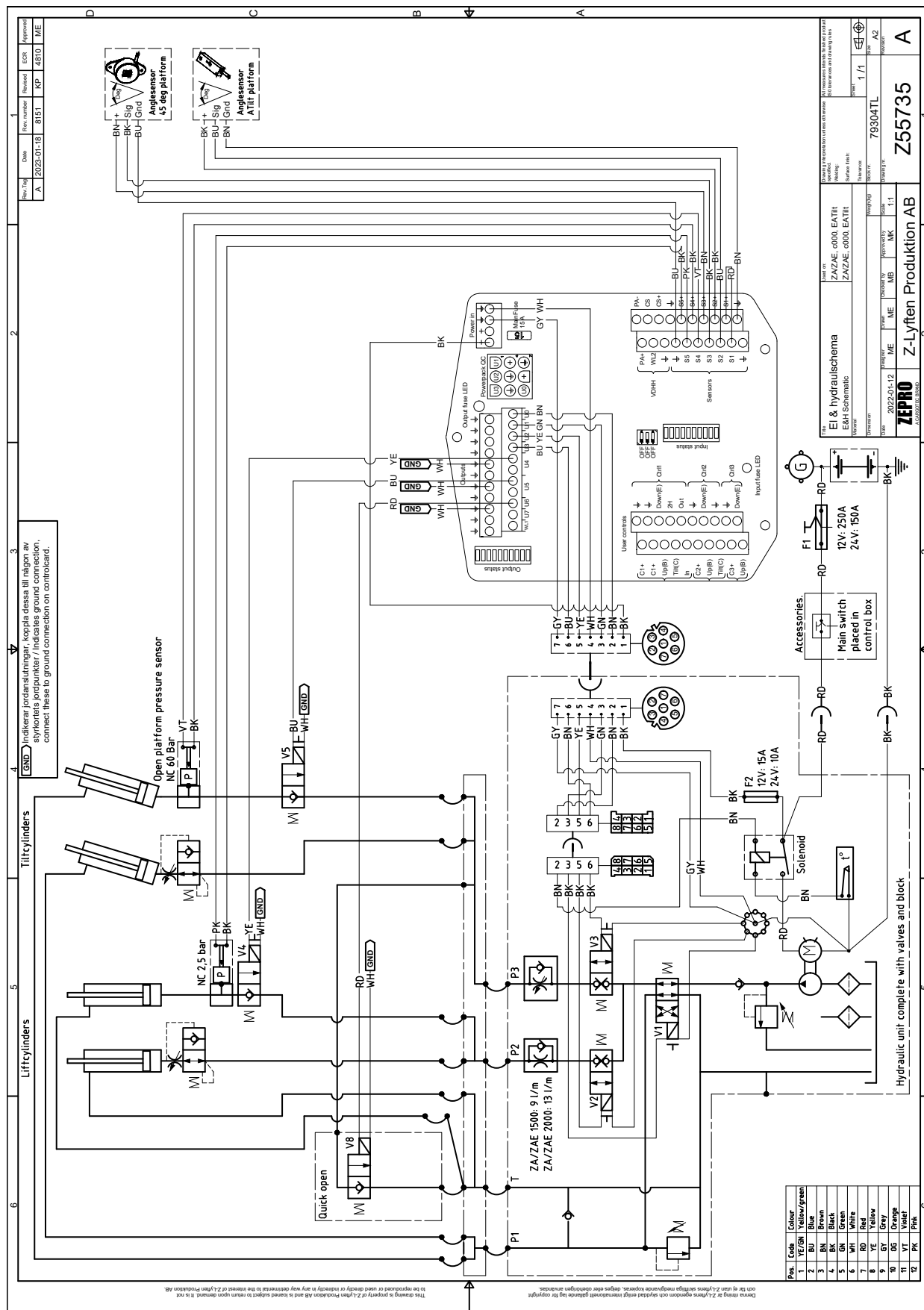
8.1 ZAHB / ZAEHD 150/200 MA (TLC B1)



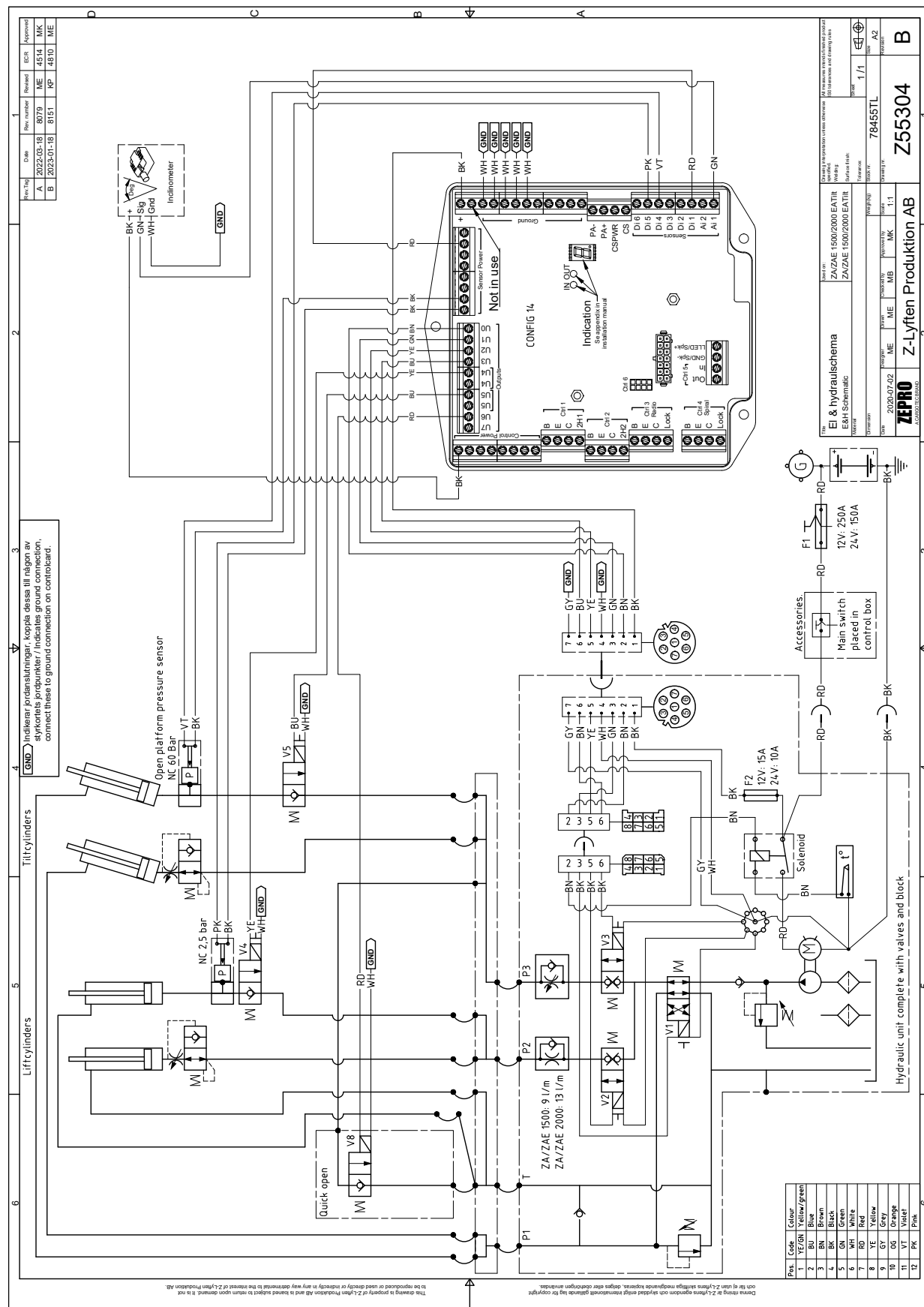
8.2 ZAHD / ZAEHD 150/200 MA (ZePRO1)



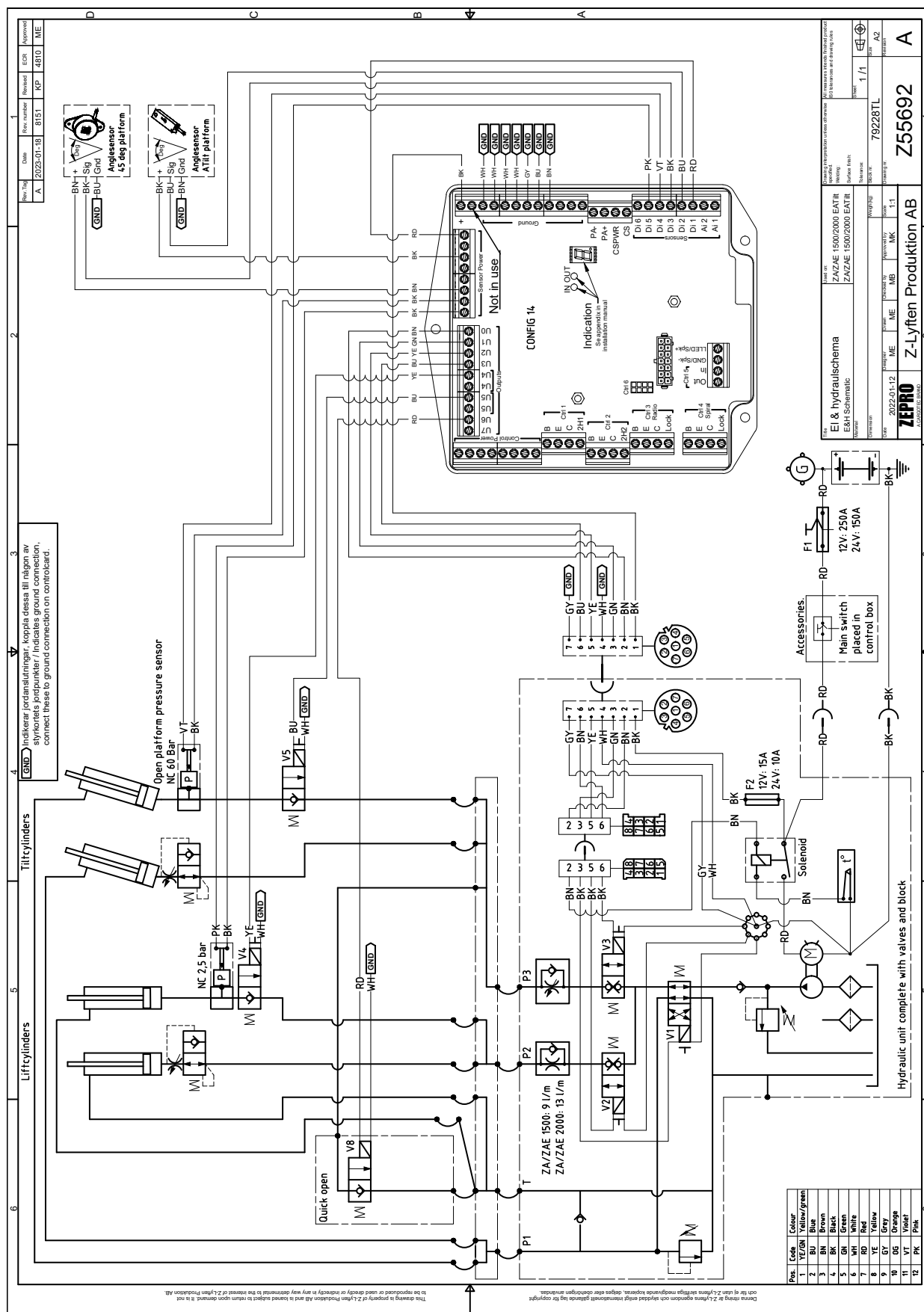
8.3 ZAHD / ZAEHD 150/200 MA Autotilt (TLC-B1)



8.4 ZAHD / ZAEHD 150/200 MA, Autotilt (Inclinometer) (ZePRO1)



8.5 ZAHD / ZAEHD 150/200 MA, Autotilt (IFM) (ZePRO1)



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).

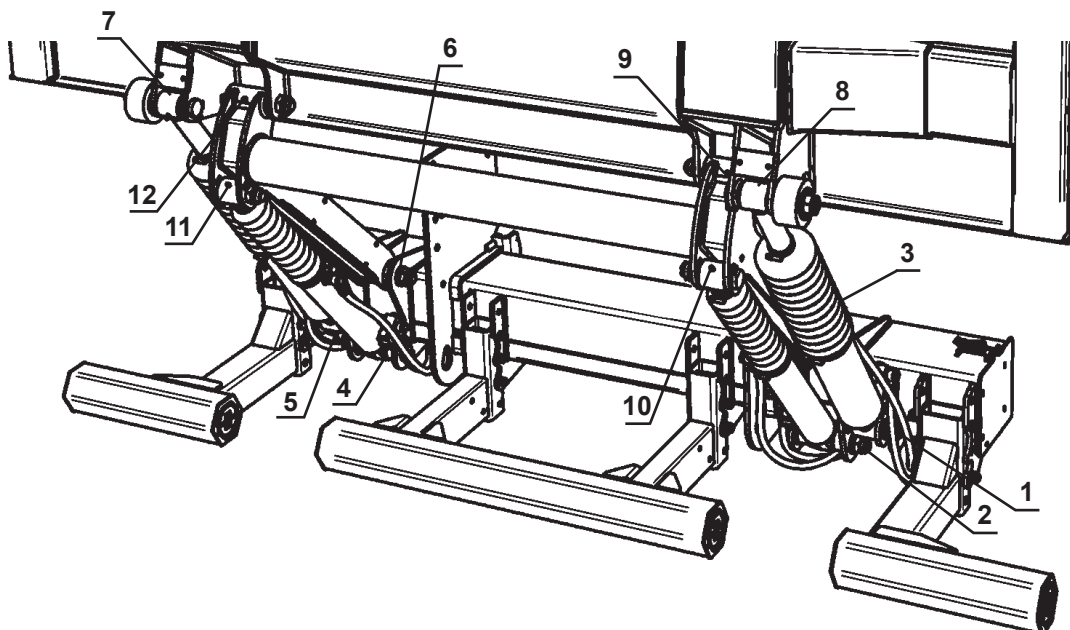


Image 76. Lubrication points

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.

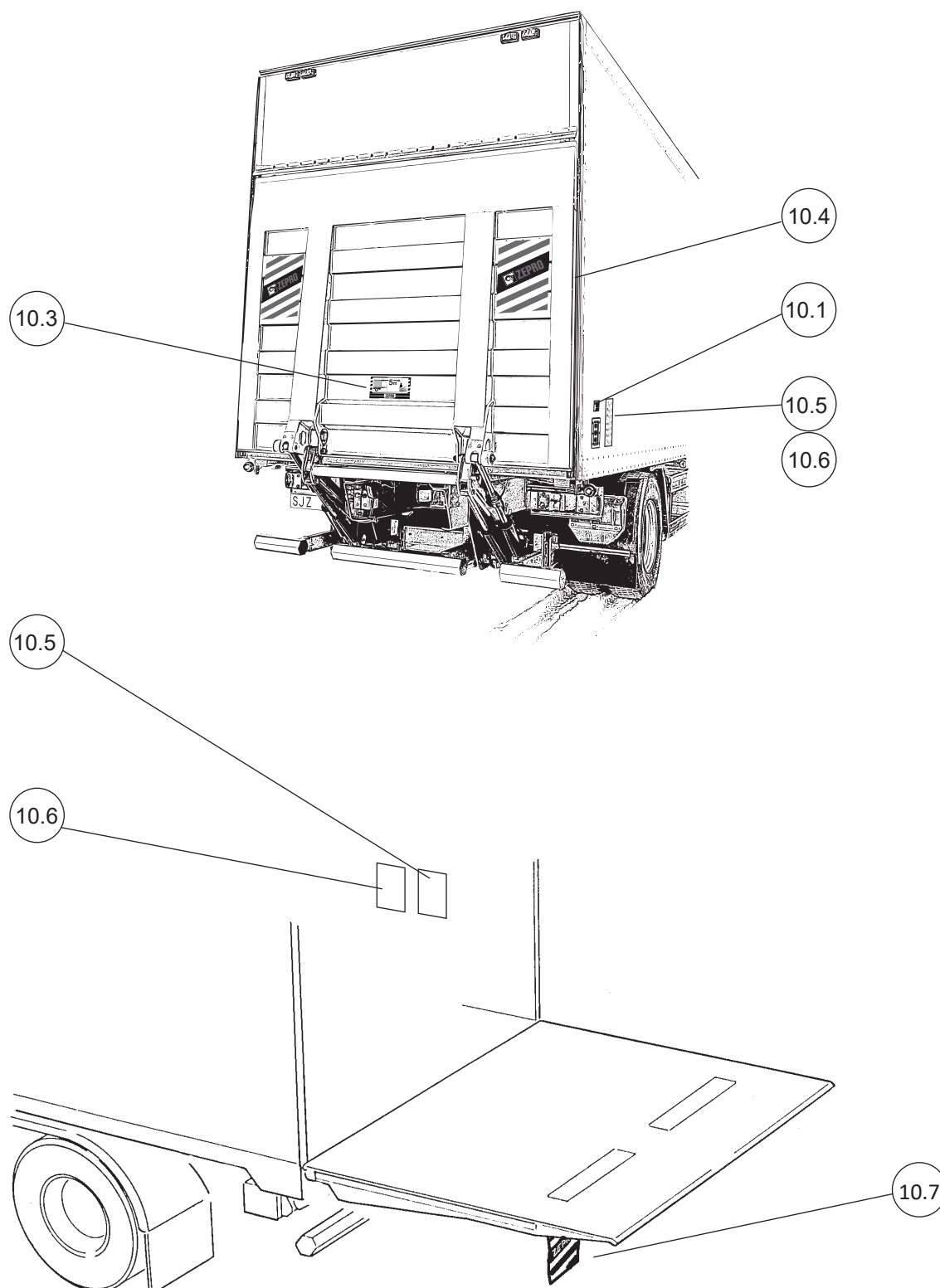


Image 77. Overview of labelling

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.

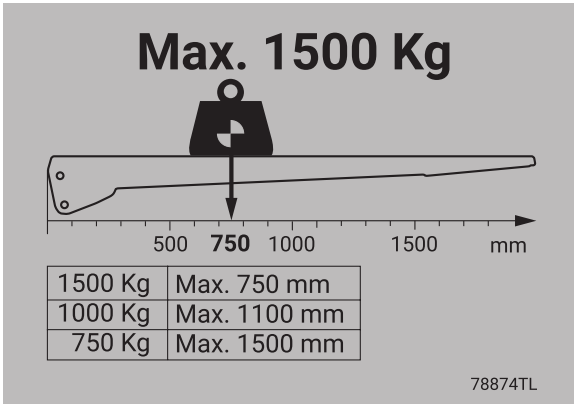


Image 78. Load diagram for load capacity 1500 kg, centre of gravity distance 750 mm.

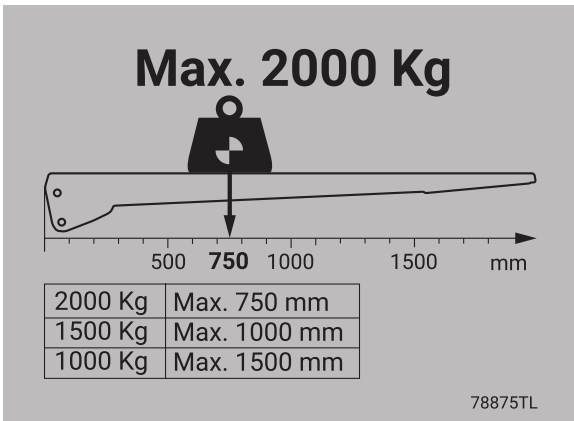


Image 79. Load diagram for load capacity 2000 kg, centre of gravity distance 750 mm.

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)

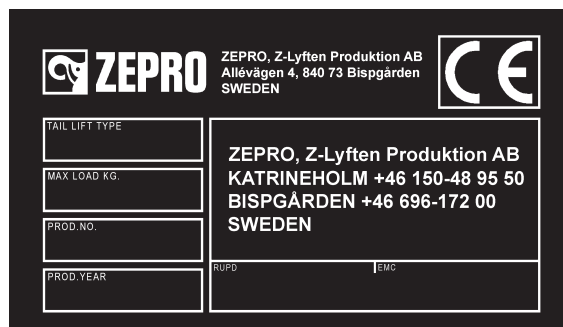


Image 80. Identification plate

10.3 Work area

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

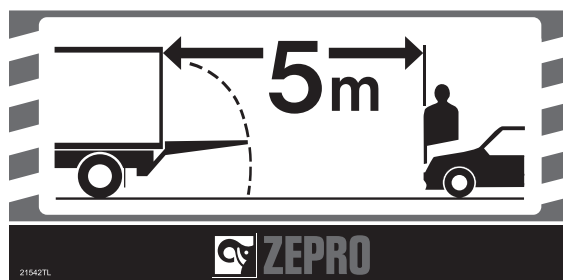


Image 81. Work area

10.4 Warning tape

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

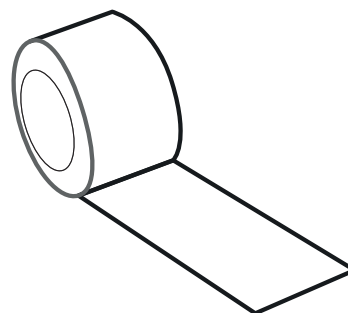


Image 82. Warning tape

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.

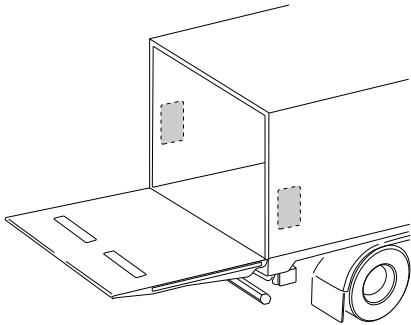


Image 83. Standard mounting

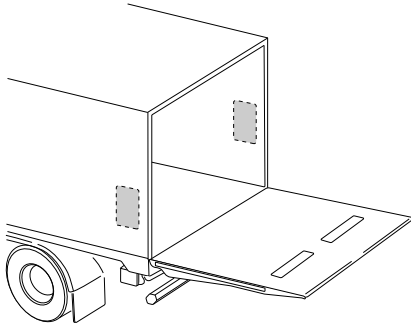


Image 84. Reversed mounting

Control device	Sticker
CD 1, 2, 9	55053TL *
CD 1,2,9 Horizon- tal	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

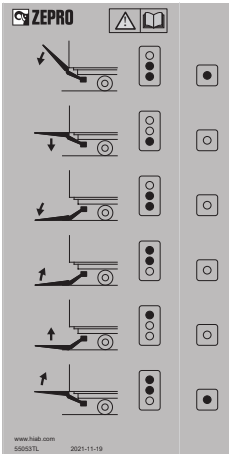


Image 85. Control device sticker for CD 1, 2, 9

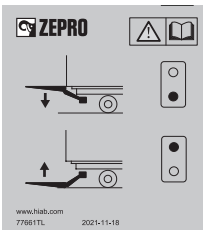


Image 86. Control device sticker for CD 10

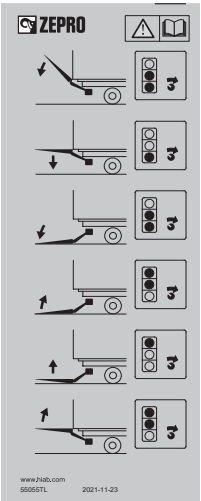


Image 87. Control device sticker for CD 4

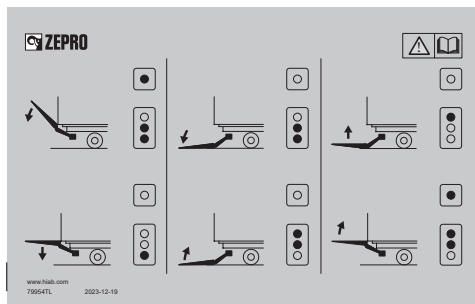


Image 88. Control device decal for CD 1 with the two-hand button mounted above the control device.

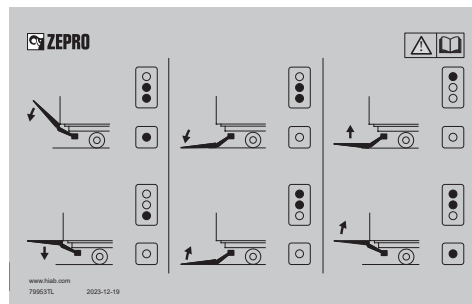


Image 89. Control device decal for CD1 with two-hand button mounted below the control device.

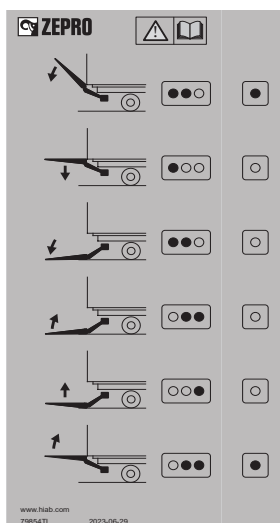


Image 90. Control device decals for CD 1, 2 and 9 for horizontal control device is ordered separately. 79854TL

10.6 Danger area

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

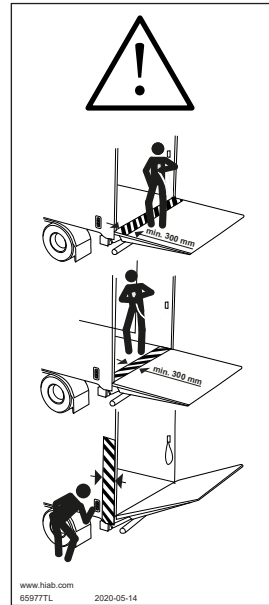


Image 91. Danger area

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. Swage the tracks together to secure the warning flags. The flags must be provided with reflective tape.



Image 92. 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. Image 93.
- 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 750 mm

Capacity	Load 1500 kg	Load 2000 kg
	Distance out in platform (L)	
1500 kg	940 mm	-
2000 kg	1250 mm	940 mm

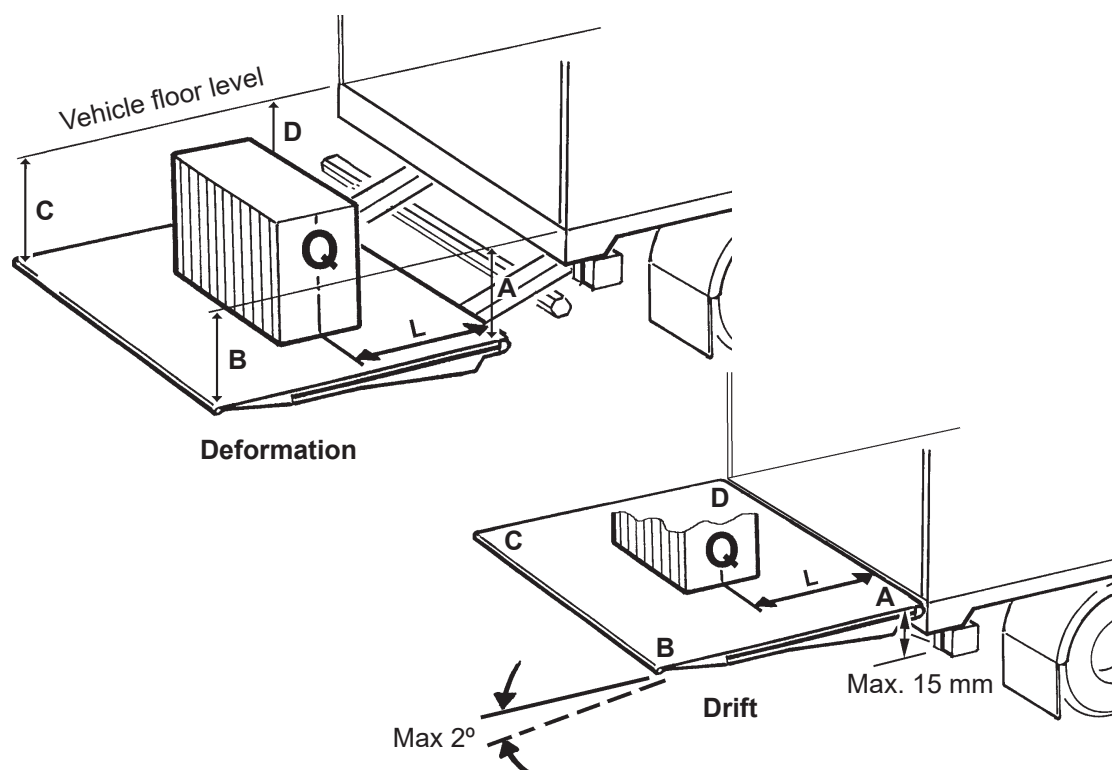


Image 93. Testing and verification

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. Verify 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 750 mm

Capacity	Load 1500 kg	Load 2000 kg
	Distance out in platform (L)	
1500 kg	750 mm	-
2000 kg	1000 mm	750 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 cannot be activated if the cabin switch is in the off position.
- That the tail lift cannot be activated 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 rupture 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 platform's mechanical lock is functioning 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 Registration

For the tail lift's guarantee to be valid, the delivery card must be registered in C-care (www.c-office.com). The bodybuilder is responsible for registration in C-care and must certify in the intended location in tail lift's manual that registration has been done.

13 Specifications

13.1 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.

Cpl. Lift chassis (without platform)		Aluminium platforms	
		Flat 40mm	
ZAHD 150-155	368 kg		
ZAHD 150-175	377 kg	Alu. platform 1705x2540 mm	161 kg
ZAHD 200-155	369 kg	Alu. platform 2005x2540 mm	180 kg
ZAHD 200-175	378 kg	Alu. platform 2205x2540 mm	194 kg

Steel platforms

Steel platform 2000x2540 mm	335 kg
-----------------------------	--------

Lift components (part of cpl. lift chassis).

Frame half ZAHD 150/200	28,7 kg
Frame half ZAEHD 150/200	31,3 kg
Liftarm ZAHD/ZAEHD 150/200-155	55,8 kg
Liftarm ZAHD/ZAEHD 150/200-175	60,5 kg
3-part underrunbar cpl. ZA/E	34 kg
Stabilizer underrunbar	46 kg
Mounting bracket cpl. ZAHD, frame 770	16 kg
Mounting bracket cpl. ZAHD, frame 850	13,8 kg
Mounting bracket cpl. ZAEHD, frame 770	19,6 kg
Mounting bracket cpl. ZAEHD, frame 850	16,7 kg
Lift cylinder ZAHD/ZAEHD 150-155	10,7 kg/pce.
Lift cylinder ZAHD/ZAEHD 150-175	12,2 kg/pce.
Lift cylinder ZAHD/ZAEHD 200-155	12,6 kg/pce.
Lift cylinder ZAHD/ZAEHD 200-175	14,1 kg/pce.
Tilt cylinder ZAHD/ZAEHD 150/200-155	19,8 kg/pce.
Tilt cylinder ZAHD/ZAEHD 150/200-175	21,3 kg/pce.



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.