Installation Instruction

Tail Lift

ZHZ 500/600-850

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73161TL
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ZEPRO

Contents

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.

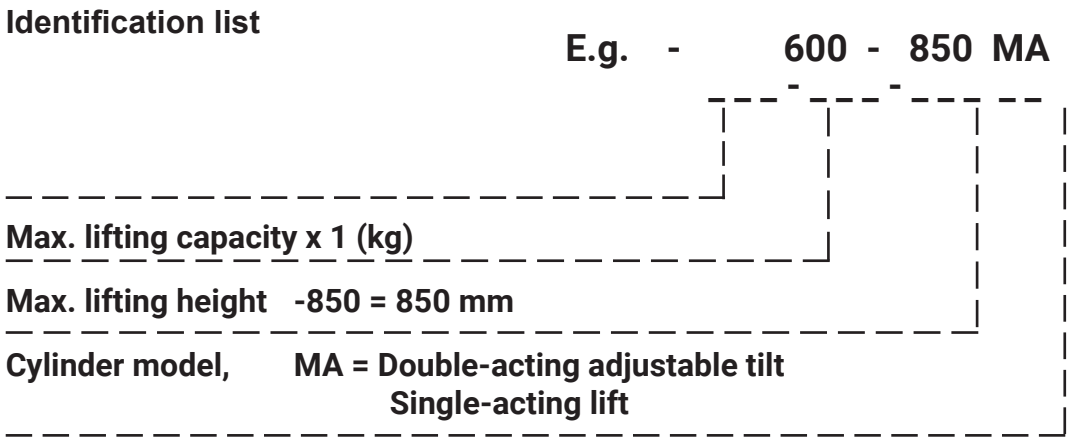
1.2 Technical support

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.

Figure 1. Identification plate

1.3 Identification



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.

CE

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

After installation, testing and verification, the tail lift's delivery card must be registered for the guarantee to be valid.

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.

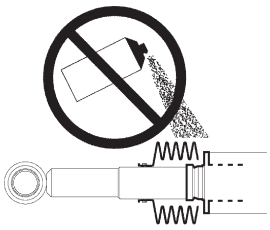


Figure 2. Piston rods, cylinder covers and boots

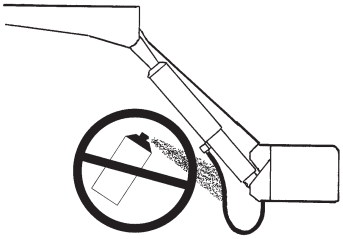


Figure 3. Hydraulic hoses

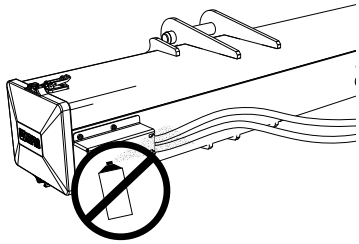


Figure 4. Cables

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.

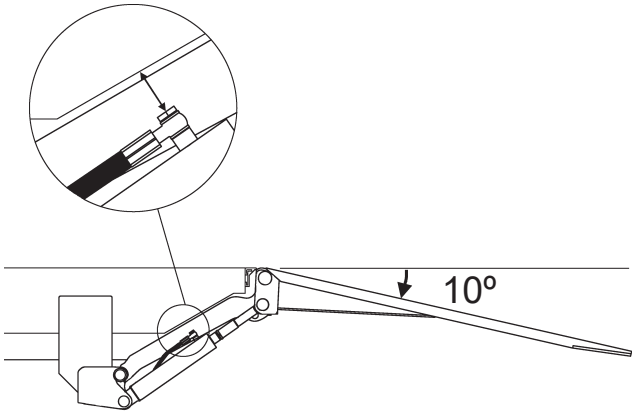


Figure 5. Clearance to the closest part of the cylinder must be at least 40 mm

⚠ WARNING!

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

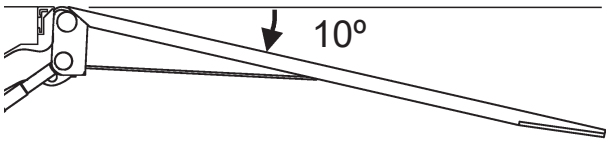


Figure 6. The platform may not be tilted down more than 10º from the horizontal

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 Main parts

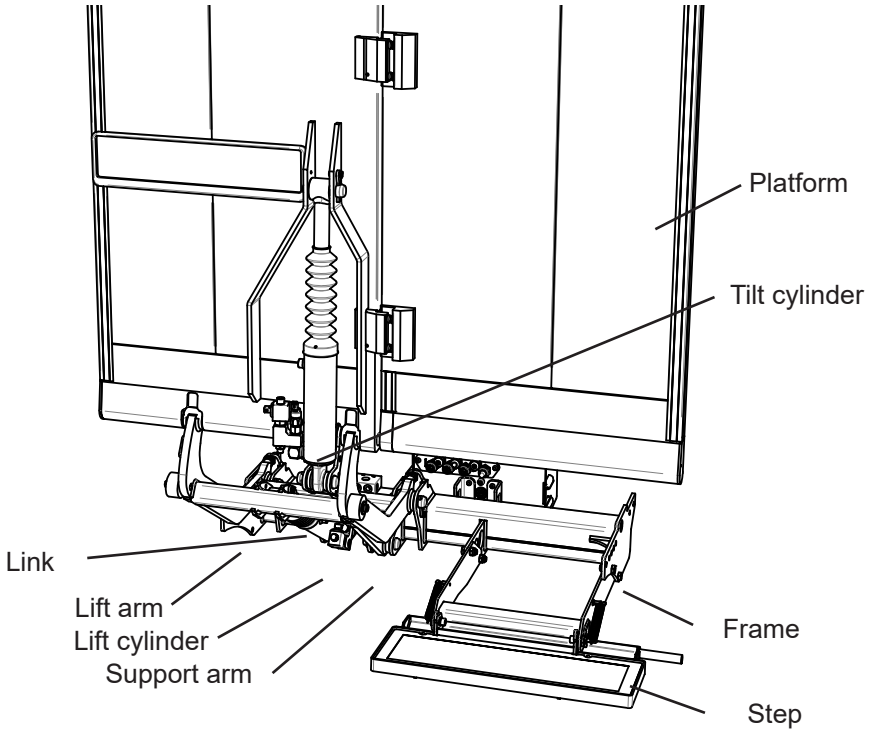


Figure 7. Overview

4 Before installation

4.1 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 position the lift as high as possible within the specified C-dimension in the table.

4.1.1 C-dimension

The C-dimension is the distance between the top 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 between the lift arms in the upper position and the vehicle floor level (A-dimension).

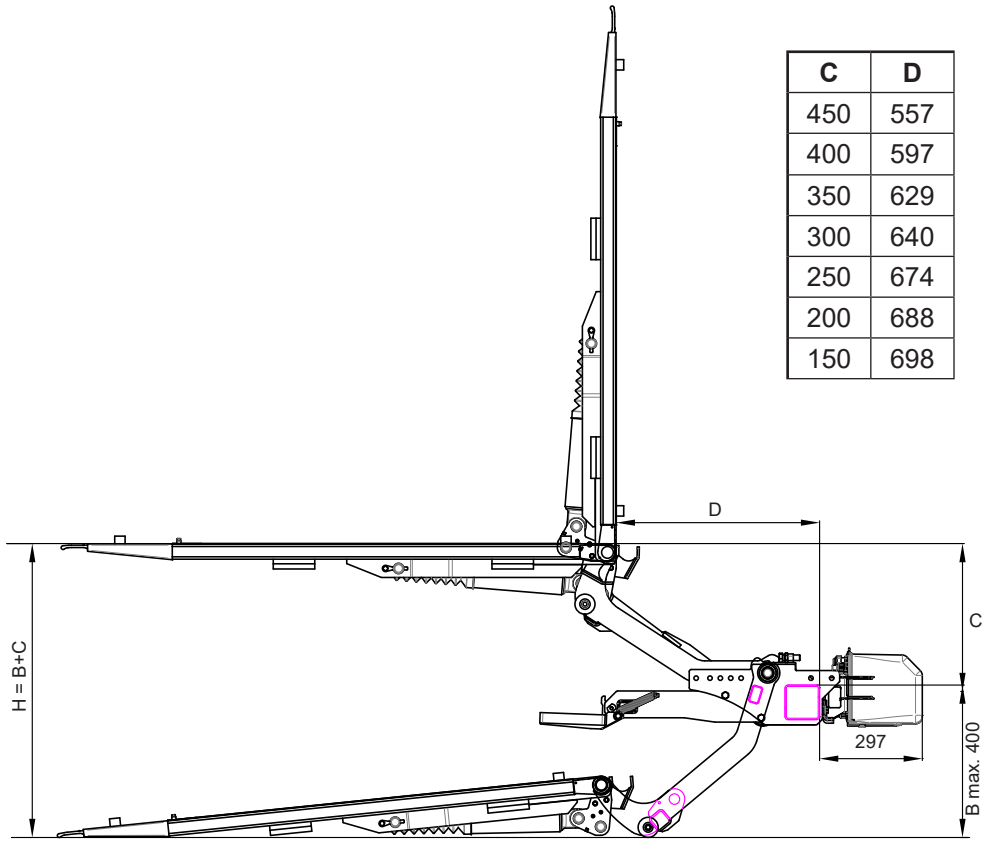
4.1.2 D-dimension

The D-dimension is the space that 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 has been determined, the D-dimension can be obtained from the table.

4.1.3 H-dimension

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

C	D
450	557
400	597
350	629
300	640
250	674
200	688
150	698



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4.2 Dimension of the support frame

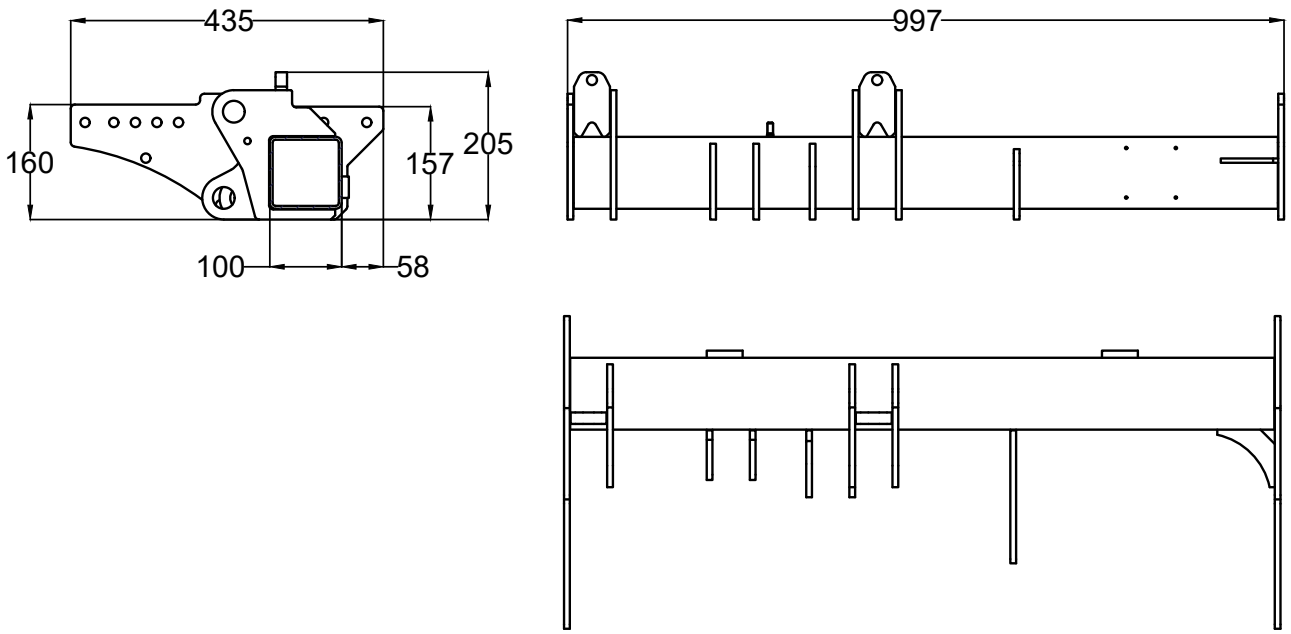


Figure 8. Dimension of the support frame

4.3 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 C1, see section 4.3.2.
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).
4. On lifts with a connected cab circuit breaker (CS), ensure it is in the ON position
5. On lifts without a connected cab circuit breaker (CS), 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.

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

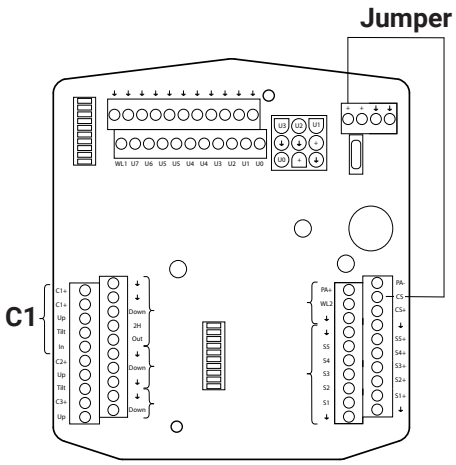


Figure 9. Temporary connection

4.3.1 Battery maintenance

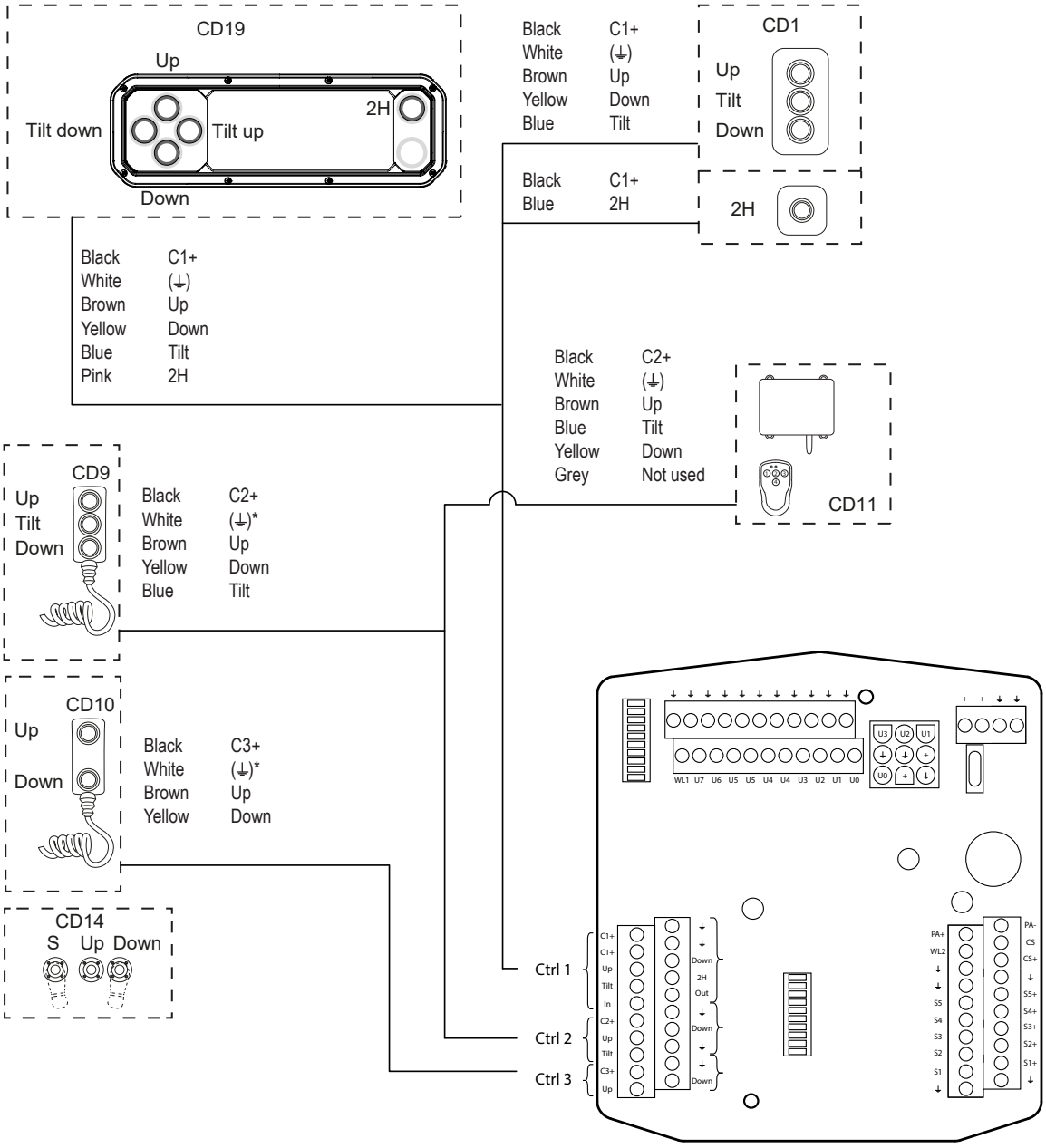
When installing the lift, when the lift is operated repeatedly, the battery charger must be used between operations to maintain the battery charge level.

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

4.3.2 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 7.5.

* applies to controllers with heating only

5 Installation

5.1 Installing the lift

1. Mount the lift to the chassibracket without tightening the screws. The number of screws and theír placement depends on the type of bracket used, see installation instruction for the mounting kit in question.
2. Use the adjusting screws for adjusting the armstop to make the height difference between the center on the lift arms shaft hole and the wehicles body floor to approx. 1 inch, see Figure 10.
3. Then adjust the lift as close as possible to the backdoors, taking into account the platform.

NOTE!
Foldable platform requires more space.

4. Tighten the mounting screws using a torque wrench**. Tightening torque 80 Nm.**

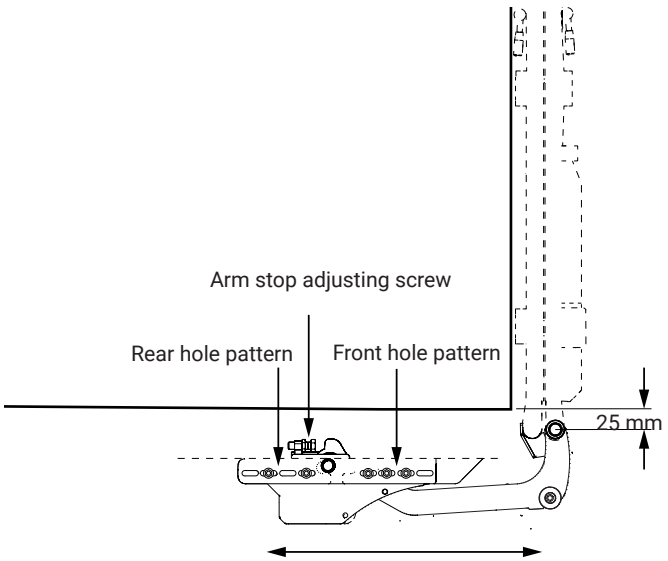


Figure 10. Use the adjusting screws for adjusting the armstop

Art. no.	Front hole pattern	Rear hole pattern
72807TL	2 screws M12x35 mm	3 screws M12x35 mm
76013TL	2 screws M12x35 mm	3 screws M12x35 mm
73029TL	2 screws M12x35 mm	3 screws M12x35 mm
74914TL	2 screws M12x35 mm	2 screws M12x35 mm
75018TL	2 screws M12x35 mm	2 screws M12x35 mm
73169TL	2 screws M12x35 mm	3 screws M12x35 mm
73167TL	2 screws M12x35 mm	3 screws M12x35 mm
74451TL	2 screws M12x35 mm	2 screws M12x35 mm
74452TL	2 screws M12x35 mm	3 screws M12x35 mm
75236TL	2 screws M12x35 mm	3 screws M12x35 mm

5.2 Installing the Platform

1. Remove the cover at the lower en of the platform, see Figure 11.
2. Push the shaft out off the platform, see Figure 12.
3. Position the platform on the lift arms, see Figure 13.
4. Push the shaft inwards until its flush with the platforms suface on the opposite side, see Figure 14:1.
5. Fit in the screw (attached), see Figure 14:2, to lock the platform shaft.
6. Refit the cover.
7. Attach the cylinder to the cylinder bracket and lock with locking pin, see Figure 15.

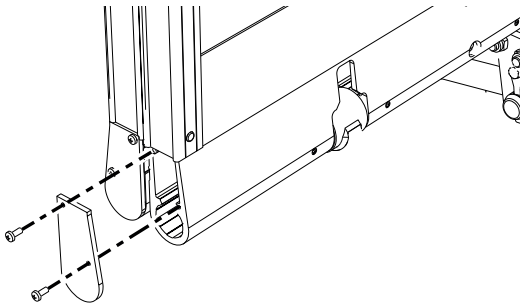


Figure 11. Remove the cover

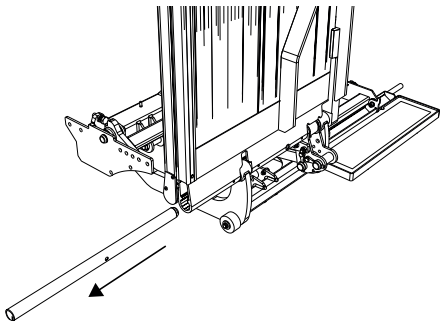


Figure 12. Push the shaft out off the platform

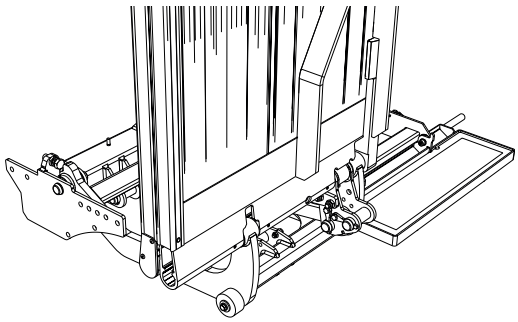


Figure 13. Place the platform

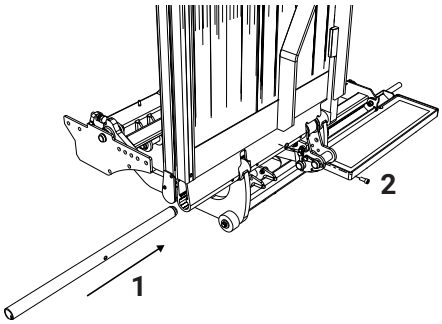


Figure 14. Fit in and lock the platform shaft

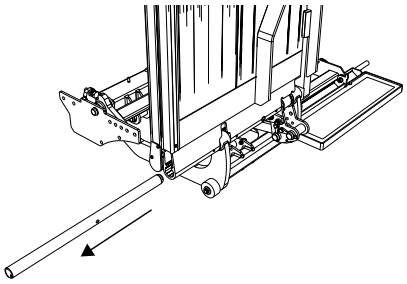


Figure 15. Attach and lock the cylinder

5.3 Installing the angle sensor

If the lift is equipped with radio control, associated angle sensor must be mounted on the platform, see Fig 16. Use sensor bracket, art. no. 53937TL (Ordered separately).

1. Mark the position of the bracket holes on the platform and drill suitable holes.
2. Mount the bracket (Art. no. 53937TL) using the attached two pop rivets, see Fig 16.
3. Mount the angle sensor with the connection cable pointing downwards and out on the bracket using the attached screws, see Fig 17.
4. Mount the cable among existing cables using cable ties. Connection is described later in section 7.

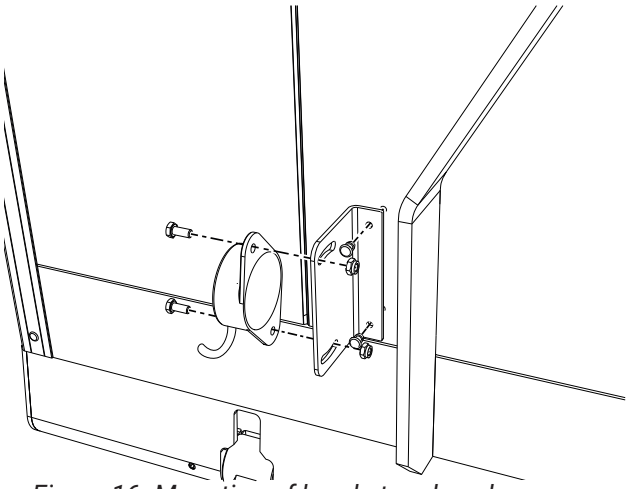


Figure 16. Mounting of bracket and angle sensor

NOTE!

The cable must be installed sufficiently far from or be protected against sharp edges, so that it cannot chafe or otherwise sustain damage that can lead to a short circuit or cable fire.

In general, care must be taken whenever routing cables, in order to ensure a longer cable service life and to reduce the risk of unnecessary operational stoppages.

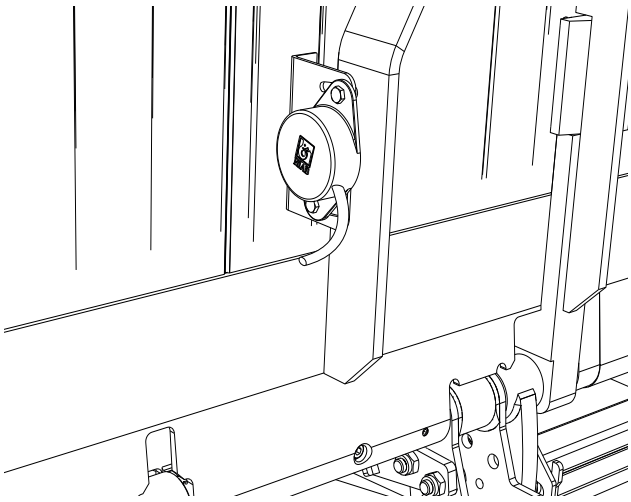


Figure 17. Mounted angle sensor

5.4 Installing the hydraulic unit

A suitable location for the hydraulic unit is on the wheel housing. The unit is ideally secured with the supplied bracket.

The hydraulic unit can be installed horizontally or vertically.

NOTE!
Replace transport plug with regular tank cap before removing plugs in A and B.

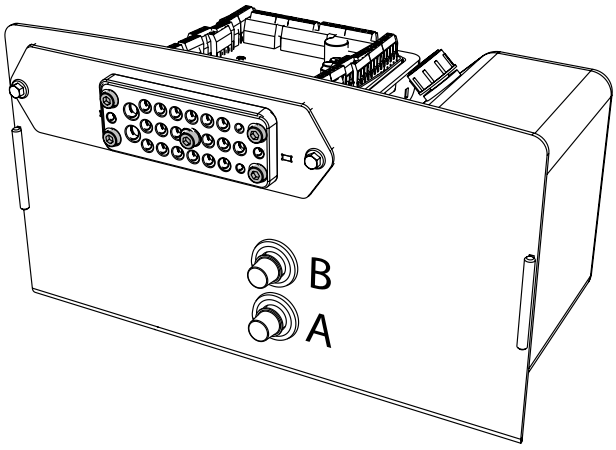


Figure 18. Return side tilt cylinder (A), Pressure side lift/tilt cylinder (B).

5.4.1 Connection of hydraulic hoses to hydraulic unit

Return side tilt cylinder (A), Pressure side lift/tilt cylinder (B).

5.5 Installation of license plate light

Connect the license plate light to the vehicles ordinary lights cabeling.

Follow the manufacturer's recommendations.

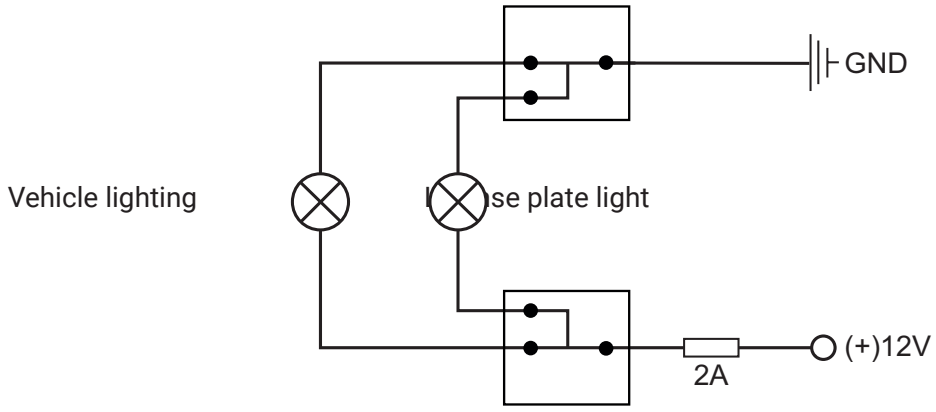


Figure 19. Example of connecting the license plate light

5.6 Installation of connection ramp

Install the connection ramp to that it connects at least 40 mm in on the platform.

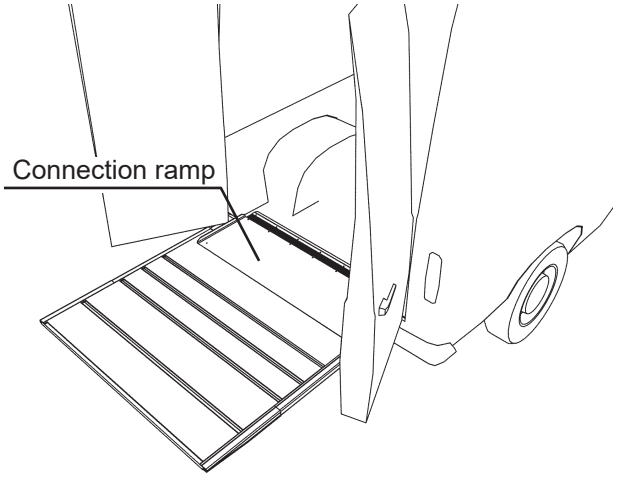


Figure 20. Connection ramp

5.7 Armstops

The armstops must be adjusted after installation of the installation kit and lift.

Adjust with the adjustment screws, so that both armstops contact the lift arms at the same time.

NOTE!

On some vehicle models, the space can be so confined that the lift has to be lowered in order for the adjusting screws to be accessible. If so, measure the need for adjustment first.

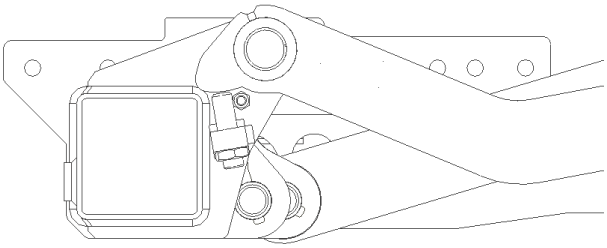


Figure 21. Armstops

5.8 Platform stop

(Applies only to folding platform)

When the lift platform is folded up and closed against the vehicle body, the platform stop must automatically lock the various parts of the platform against each other.

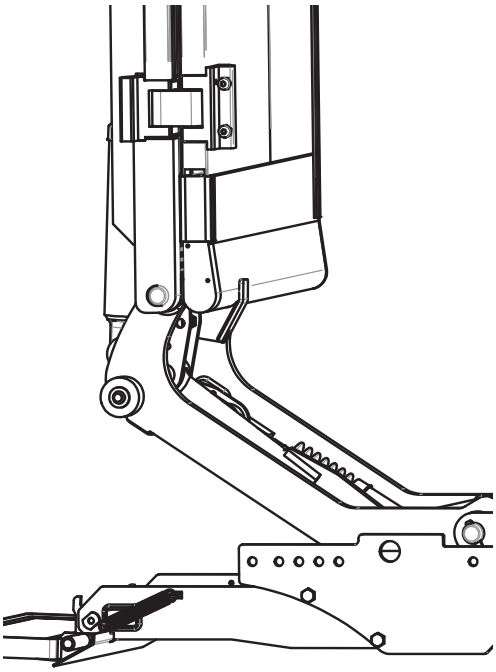


Figure 22. Platform stop

5.9 Adjustment of tilt cylinder

⚠ WARNING!
Take great care during test operation before adjusting the tilt cylinder to ensure that the vehicle body is not damaged.

Make sure that the tilt cylinder is adjusted in such a way that the platform does not catch on the vehicle body when the platform is tilted up fully.

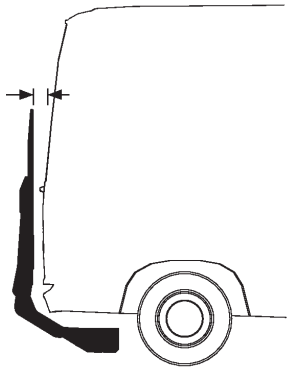


Figure 23. The tilt cylinder can be adjusted so that the lift platform stops in the vertical position behind the rear doors.

1. Undo the locking nut.
2. Turn the piston rod clockwise to angle down the platform or anti-clockwise to angle up the platform. Lock the lug in place using a suitable tool. Adjust the tilt cylinder in horizontal position.

NOTE!
The maximum permitted adjusting distance is 30 mm.

3. After adjusting, tighten the locking nut.
Tightening torque 80 Nm

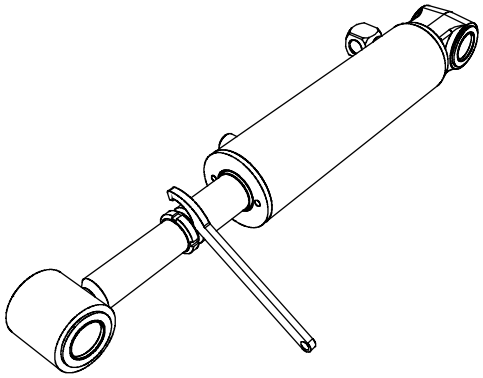


Figure 24. Undo the locking nut.

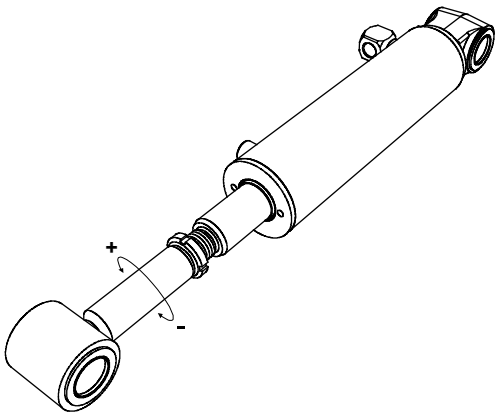


Figure 25. Turn the piston rod clockwise to angle down the platform or anti-clockwise to angle up the platform.

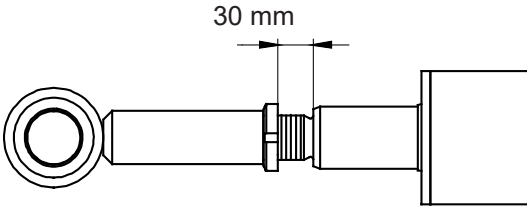


Figure 26. The maximum permitted adjusting distance is 30 mm

5.10 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.

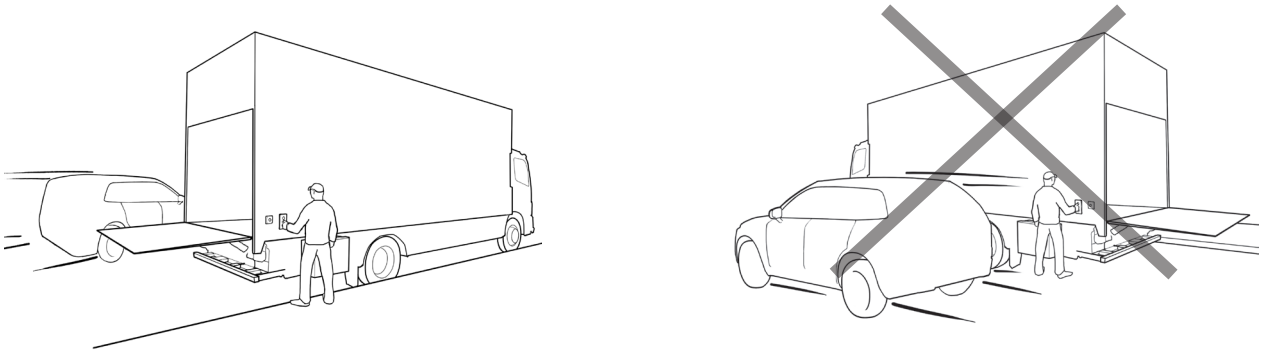


Figure 27. Installing control device

5.11 Control devices

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 Figure 28.
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 7.

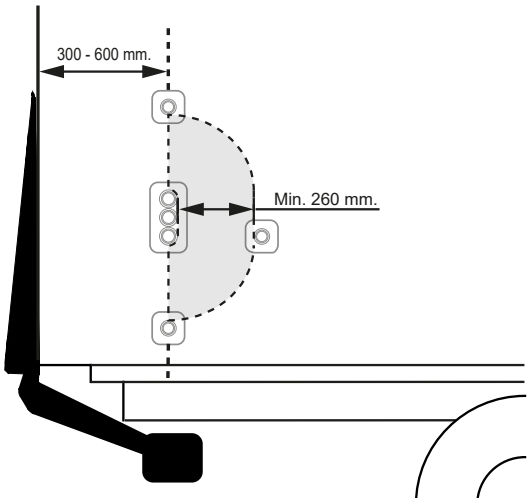


Figure 28. Installing control devices for two-handed grip

⚠ WARNING!
A controller must always be fitted on the side that is facing away from traffic in motion. If there is a need for a controller on the opposite side, a further controller must therefore be fitted. Fitting on the other side involves increased risk of injury.

5.11.1 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 Figure 29
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. Figure 29

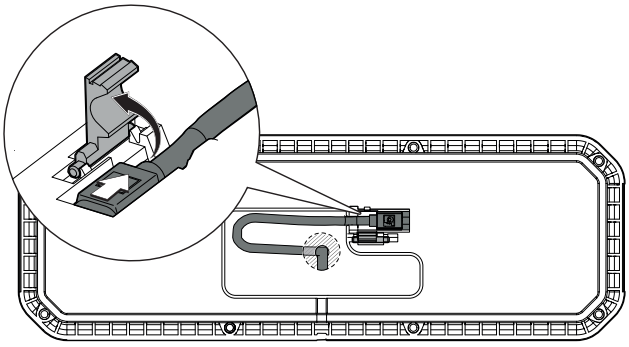
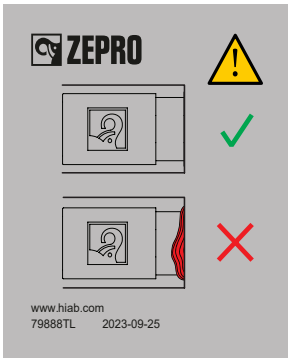


Figure 29. Disconnecting the connector



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 Figure 30.
5. Then install the controller securely on the body. See Figure 31

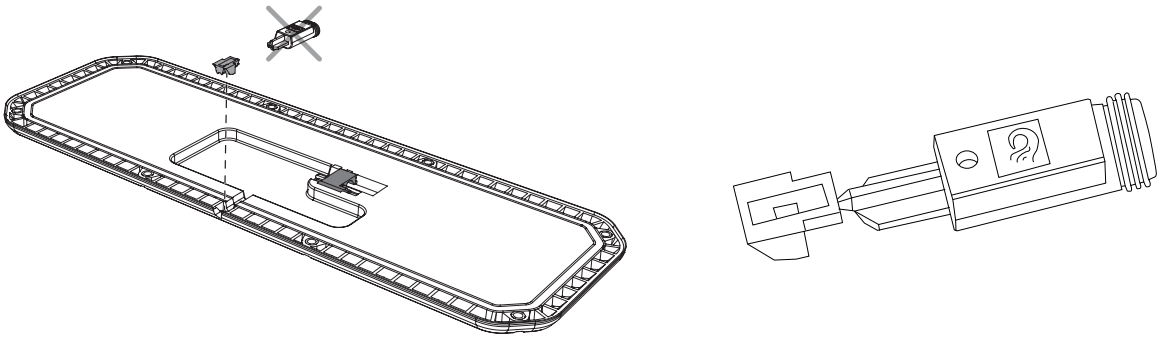


Figure 30. Installation of plug for sealing UCU.

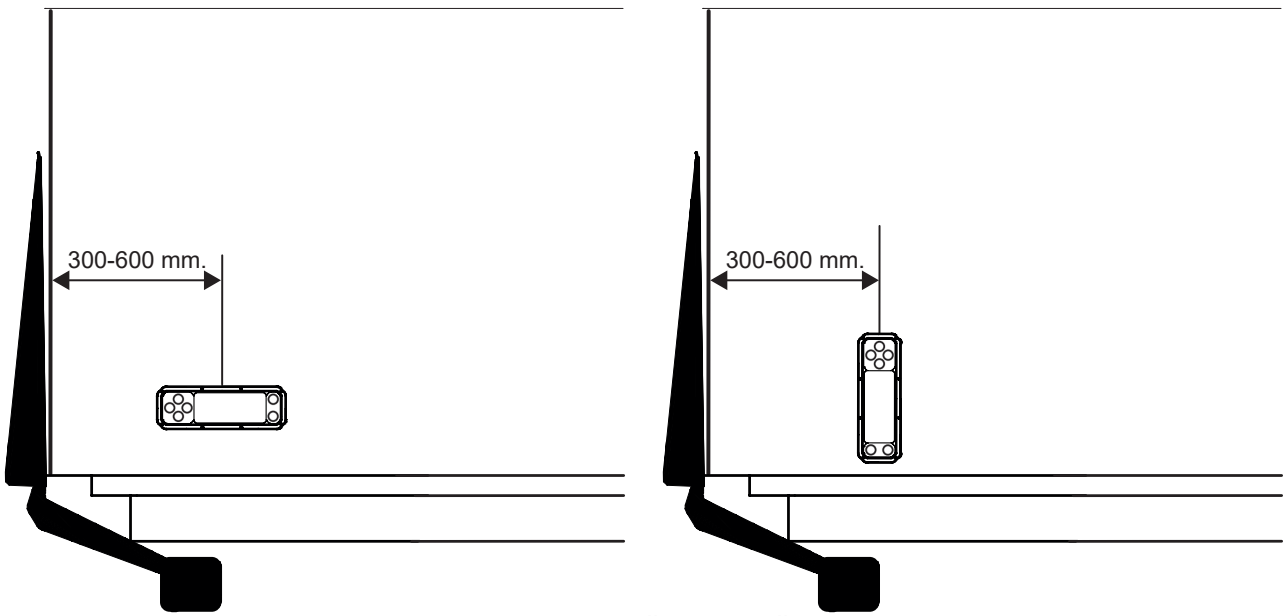


Figure 31. Installing controllers

5.12 Connection box

If more than three controllers are to be connected or if two controllers with two-handed grip are to be connected, a connection box must be fitted.

1. Install the connection box in an appropriate location.
2. When fitting, the drainage tube must be facing downwards, see Figure 32.
3. Connection is described later in section 7.

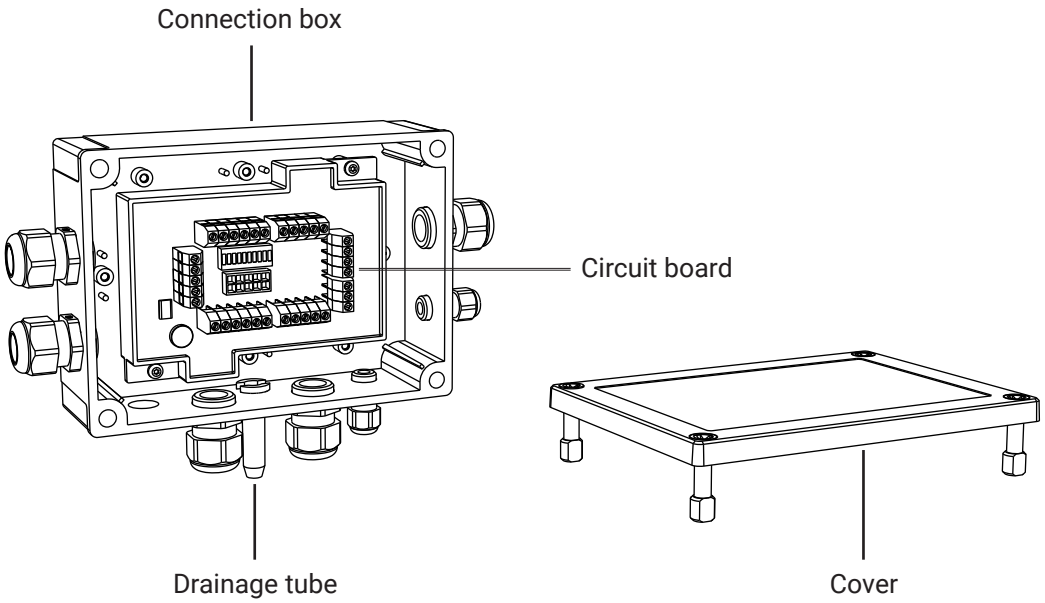


Figure 32. Connection box

6 Cable routing

6.1 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.

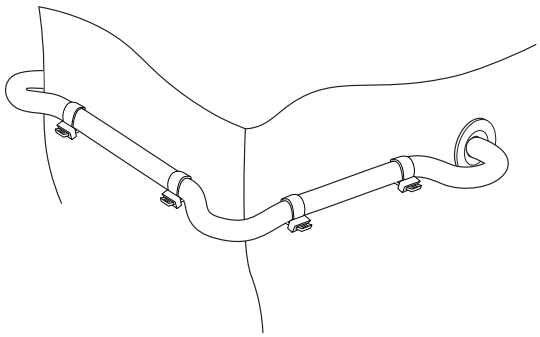


Figure 33. Protect the cable against sharp edges and use cable grommets

Figure 34. Always use shrink hose over the cable connection when fitting cable terminals

6.2 Sizing electrical systems

Ensure that the battery and charger capacity is sufficient for the product in question and that cable with sufficient cross-sectional area is used.

ZHZ 500-850 (140 bar)

	12 volt	**24 volt**
Pump – Motor unit	100 A	60 A
Magnet (hydr. unit)	4.2 A	0.7 A
Magnet (electrical hose rupture valve)	1.5 A	0.75 A
Solenoid	1.8 A	0.9 A
Minimum recommended conductor cross sectional area (copper cables, positive and negative cables)		
Control power cable	1.5 mm^2	1.5 mm^2
Main power cable, L < 9 m	25 mm^2	25 mm^2
Main power cable, L = 9- 13 m	35 mm^2	25 mm^2
Main power cable, L = 13-19 m	50 mm^2	25 mm^2
Battery		
Min. capacity, I_{min} (available for lift)	140 Ah	110 Ah
Min. voltage during operation, U_{min} (when lifting)	9 volt	18 volt

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.

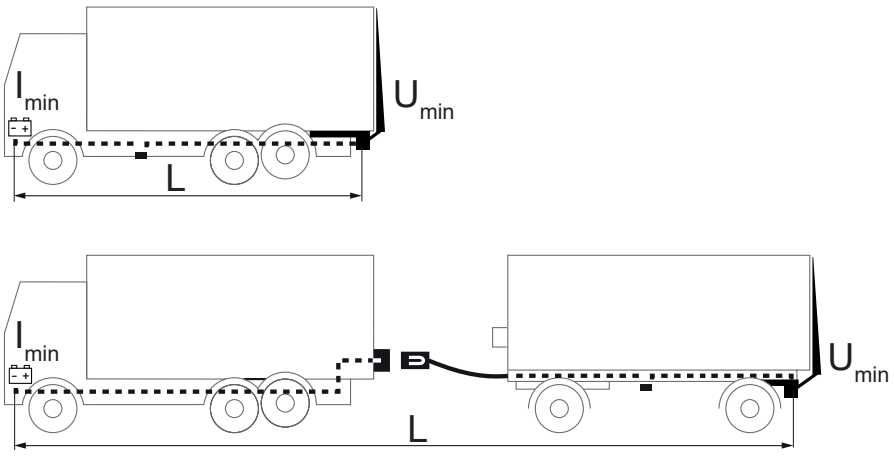


Figure 35. Maximum power consumption – Minimum recommended conductor cross sectional area

ZHZ 600-850 (190 bar)

	12 volt	**24 volt**
Pump – Motor unit	110 A	60 A
Magnet (hydr. unit)	1.4 A	0.7 A
Magnet (electrical hose rupture valve)	1.5 A	0.75 A
Solenoid	1.8 A	0.9 A
Minimum recommended conductor cross sectional area (copper cables, positive and negative cables)		
Control power cable	1.5 mm^2	1.5 mm^2
Main power cable, L < 9 m	25 mm^2	25 mm^2
Main power cable, L = 9 - 13m	35 mm^2	25 mm^2
Main power cable, L = 13-19 m	50 mm^2	25 mm^2
Battery		
Min. capacity, I_{min} (available for lift)	140 Ah	110 Ah
Min. voltage during operation, U_{min} (when lifting)	9 volt	18 volt

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.

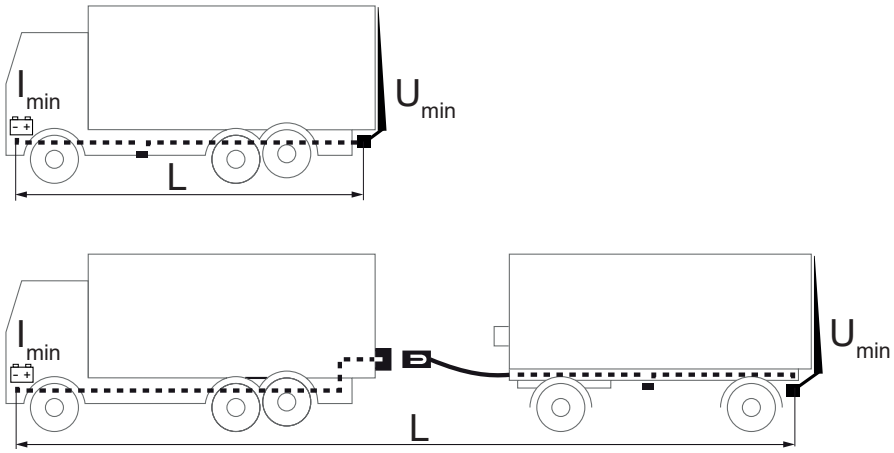


Figure 36. Maximum power consumption – Minimum recommended conductor cross sectional area

6.3 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 7.
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 7.

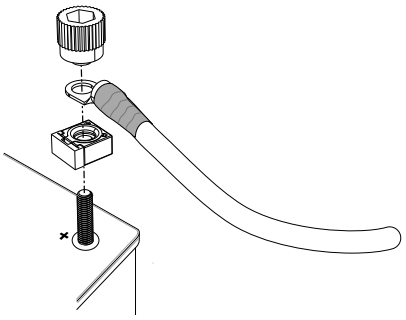


Figure 37. Connection to the battery's positive terminal

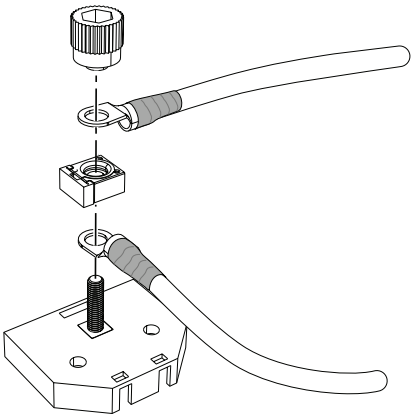


Figure 38. Connection to the fuse box

7 Connection

7.1 Cable grommet

7.1.1 Before cable connection

To be able to install/remove/adjust the cables in the cable grommet, the five screws must be loosened.

1. Loosen the five screws on the cable grommet, see Figure 39. Cables can now be installed/removed/adjusted in the grommet. The cable should be installed together with existing cabling using cable ties.

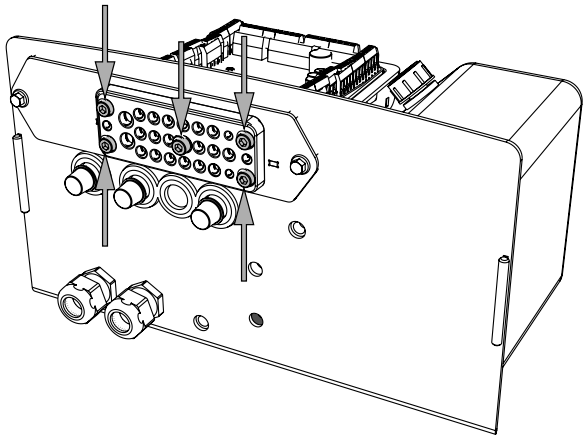


Figure 39. The cable grommet's five screws

7.1.2 Connection

1. Run the cabling through the grommet.
2. Connect the relevant controller. See section 7.2. When connecting more than 3 controllers or 2 controllers with two-handed grip, connect via connection card. See section 7.3.
3. Where applicable, connect the angle sensor. See Section 8.1.
4. 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. See Section 7.4.

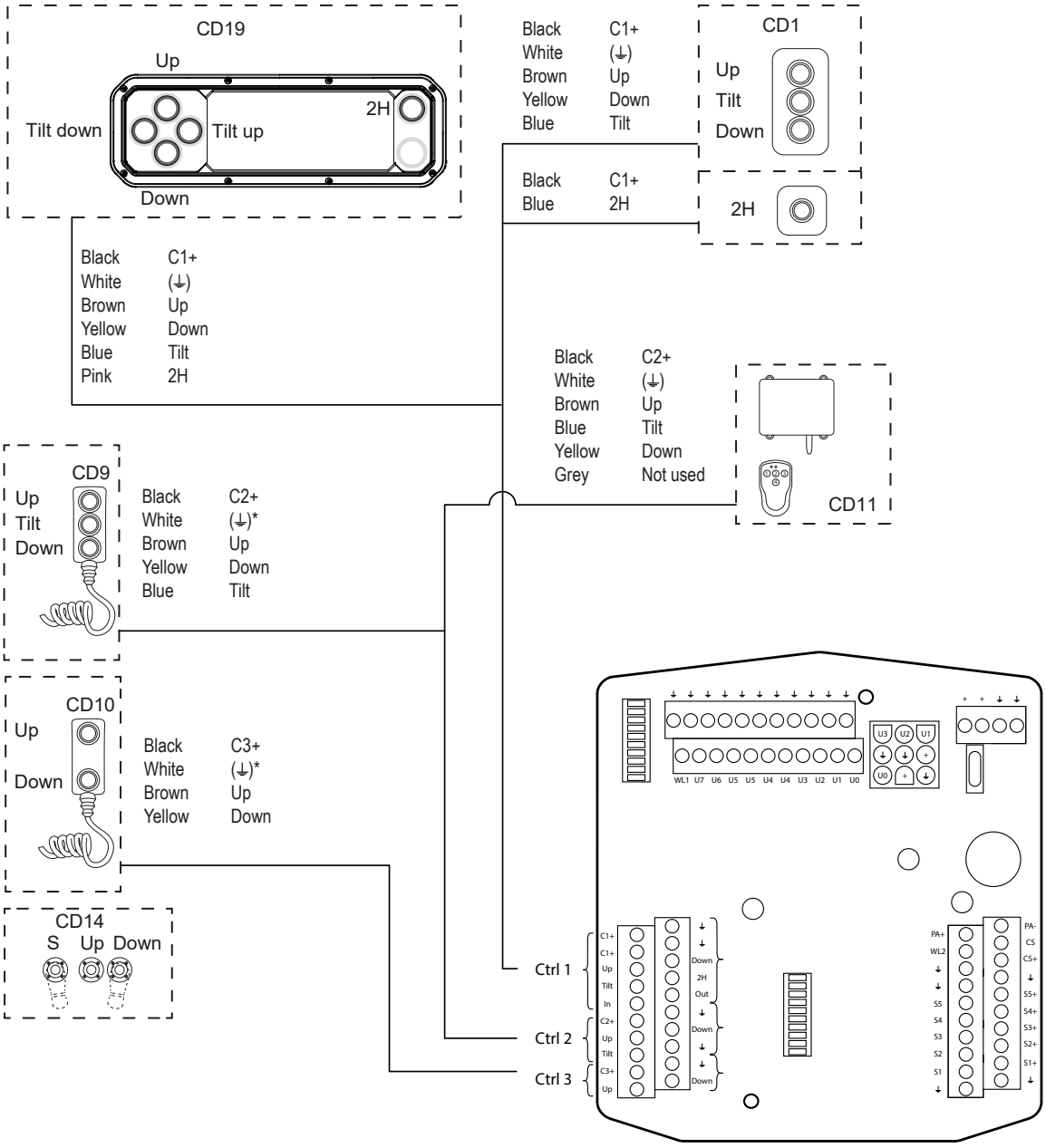
7.1.3 After connection

1. When all cables are suitably located in the cable grommet, tighten the five screws; see Figure 39. **Tightening torque: 5 Nm.**

7.2 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.

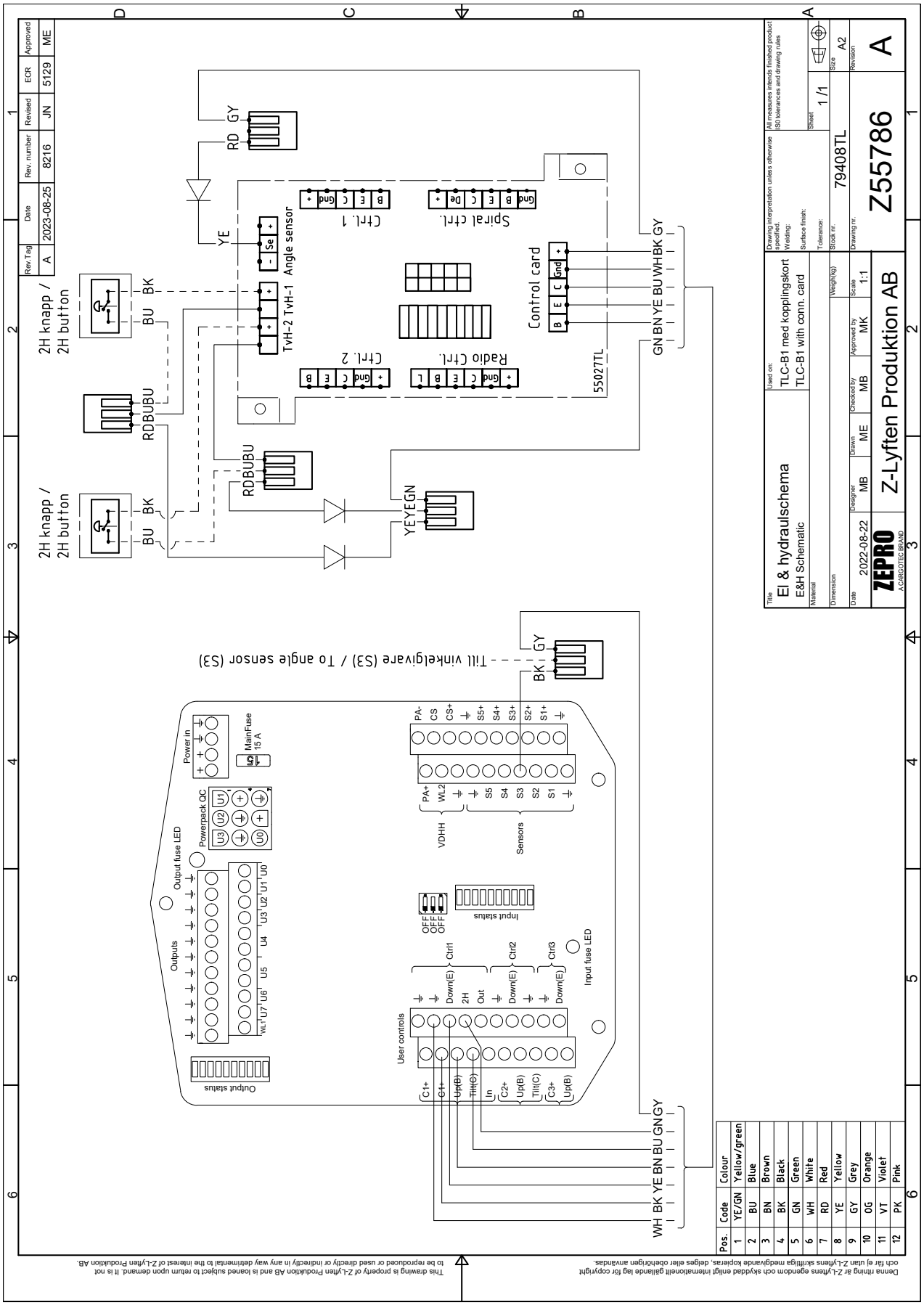
⚠ WARNING!
Make sure that the control board is not powered up before connecting. Connecting more than one controller to each connection is not permitted. Risk of physical damage.



For connection of foot controller and warning lights, see electrical diagram in Section 7.5 7.5.

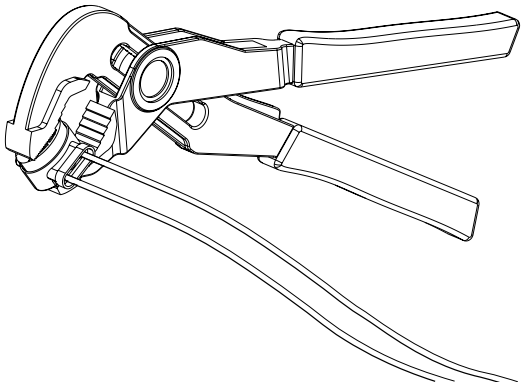
* applies to controllers with heating only

7.3 Connection card

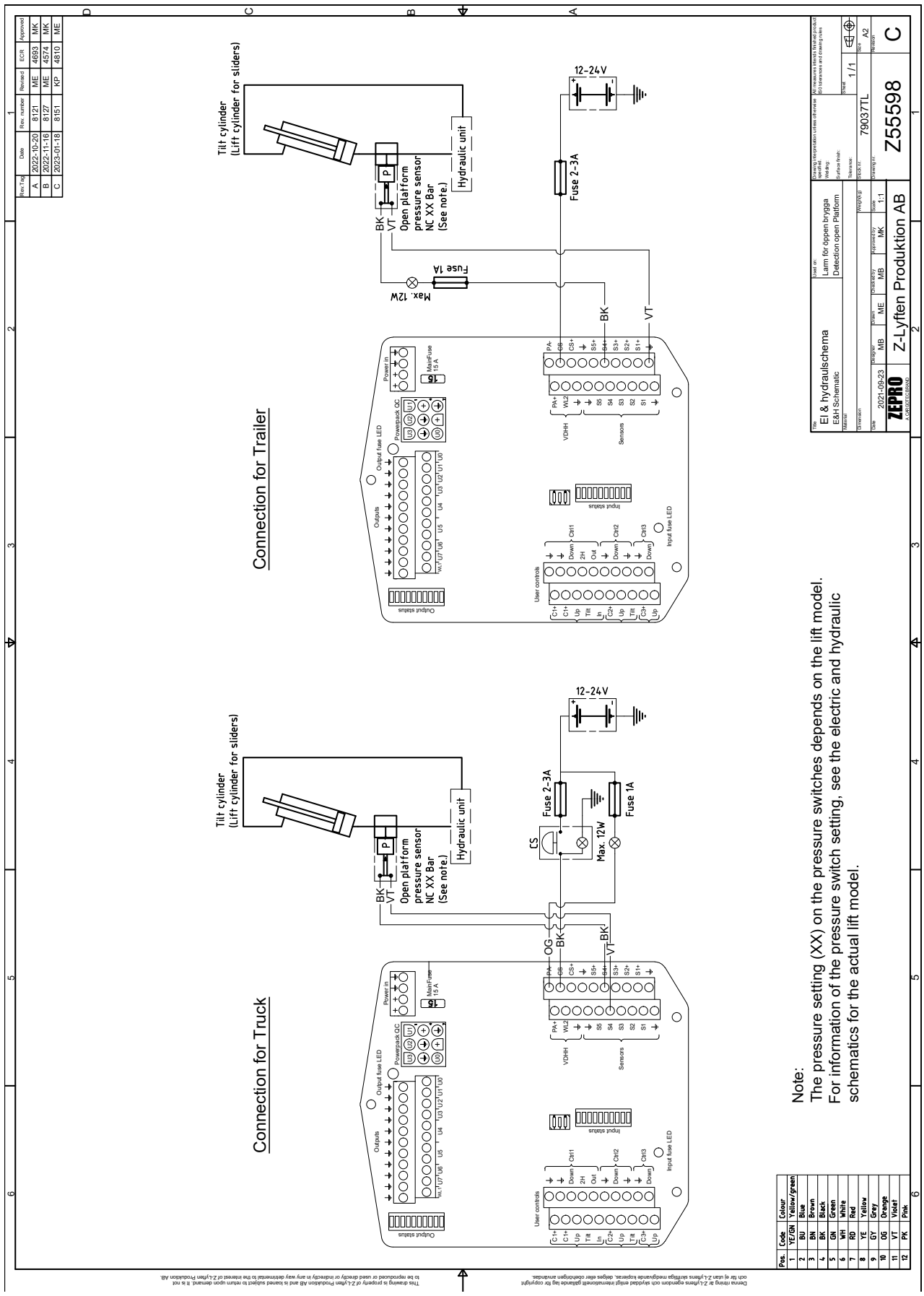


7.3.1 Scotchlok

IMPORTANT!
When using Scotchlok, make sure all cables are correctly positioned and use a suitable plier to acheev correct clamp connection. Bad connection can cause mall function and material damage on the equippment.

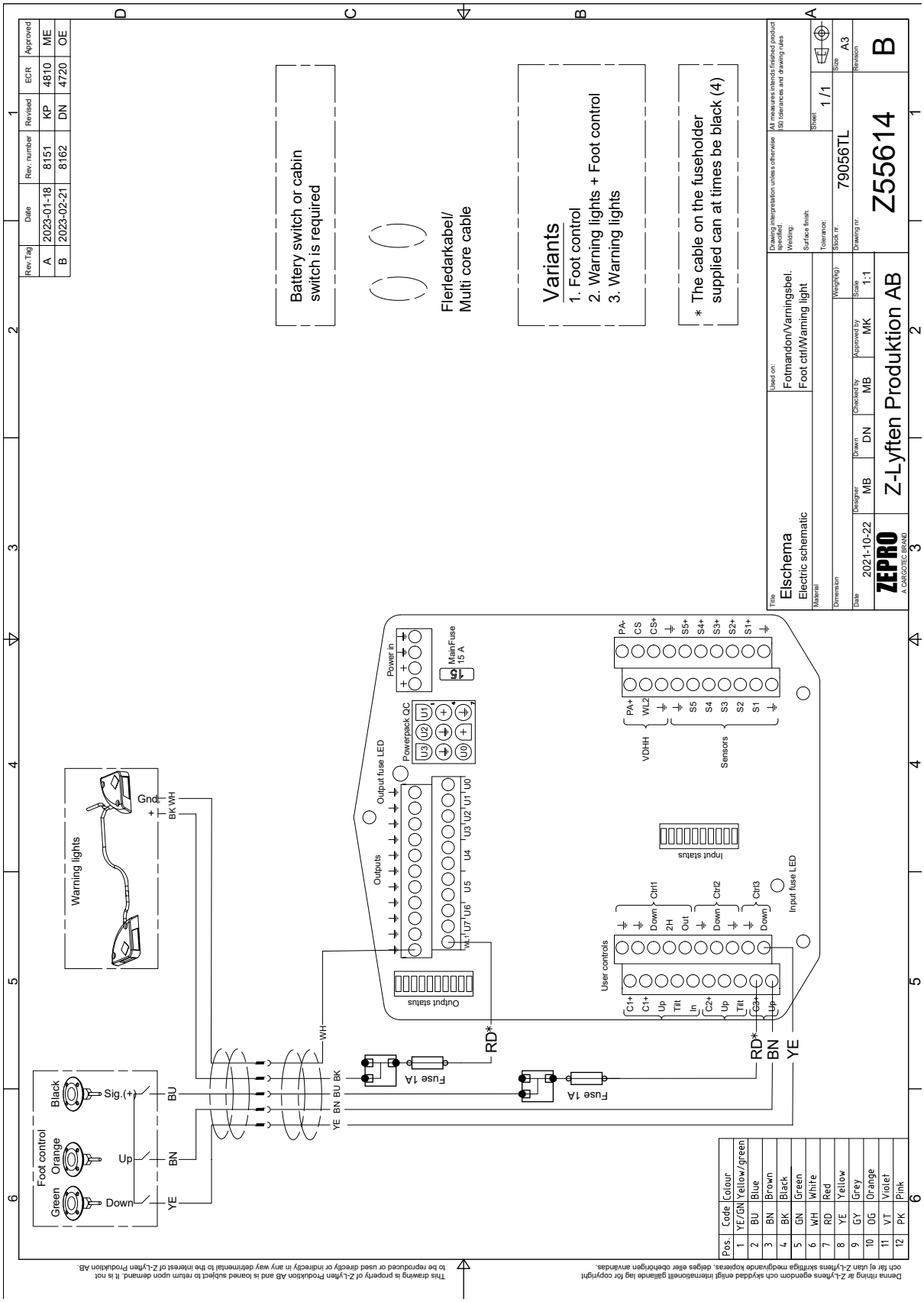


7.4 Cab switch and open platform alarm



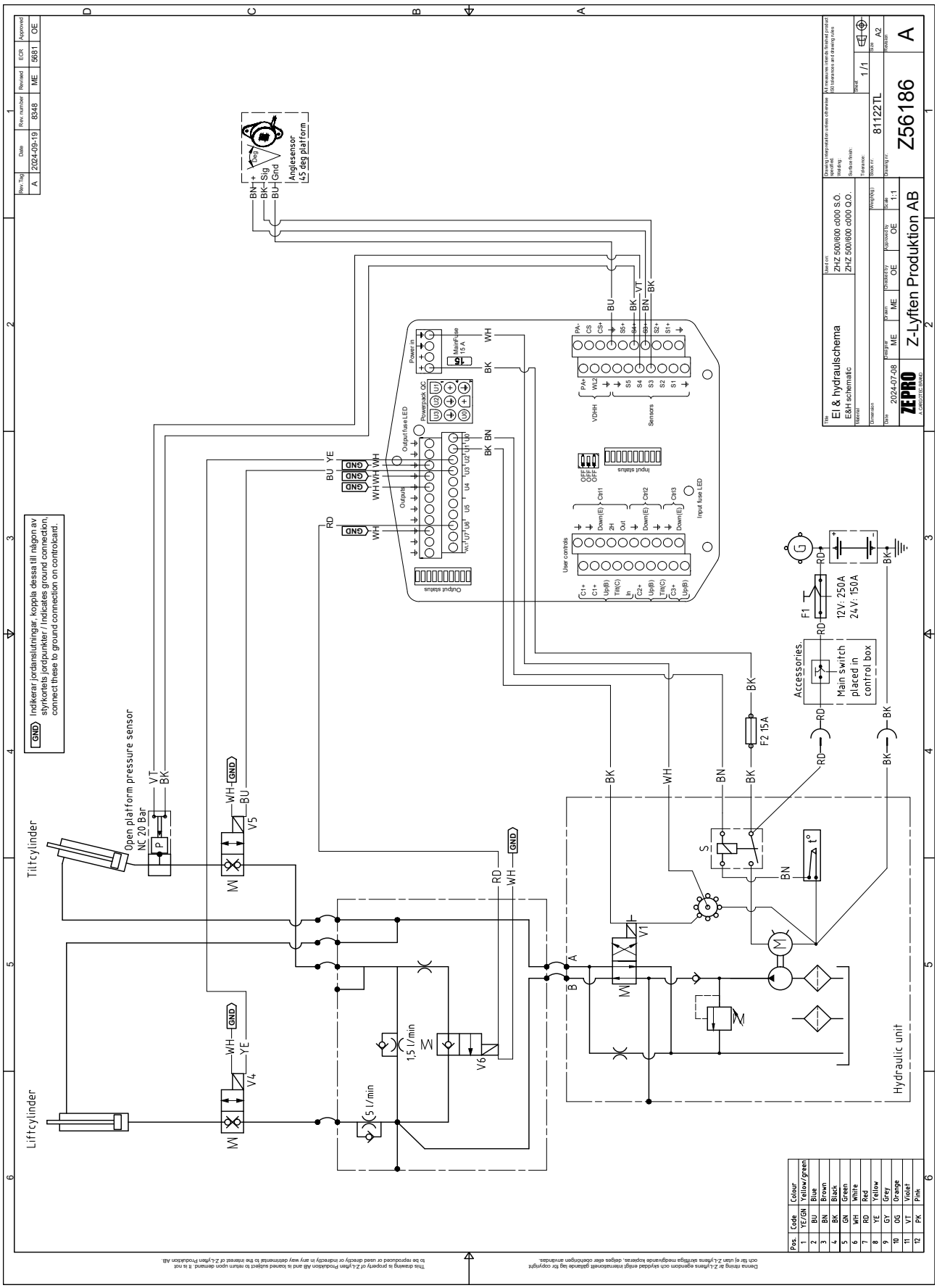
7.5 Warning lighting and foot controls (TLC-B1)

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



8 Electrical and hydraulic drawings

8.1 ZHZ-500/600-850 MA



9 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 Figure 40.
4. When connecting directly to the positive battery terminal, place the fuse (2) on the positive terminal, see Figure 40.
5. Connect the main power cable (3) to the fuse box / positive terminal, see Figure 40 - Figure 41.
6. Screw tight the cable connections and fuse with the knob (4). Install the cables at 90° or 180° from each other. Install the fuse at right angles to the cables; see Figure 40 - Figure 41.

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

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

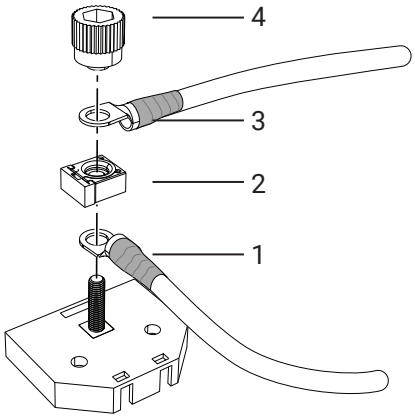


Figure 40. Connection to the fuse box

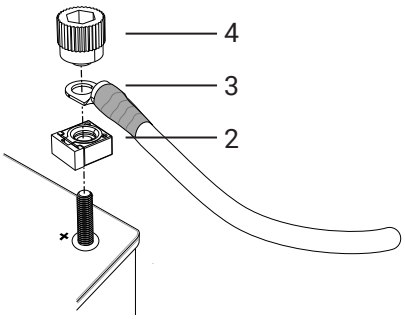


Figure 41. Connection to the battery's positive terminal

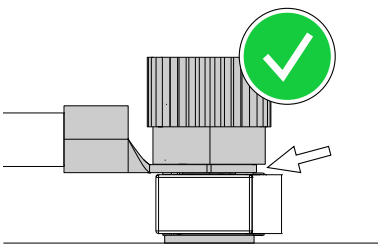


Figure 42. Correct installation

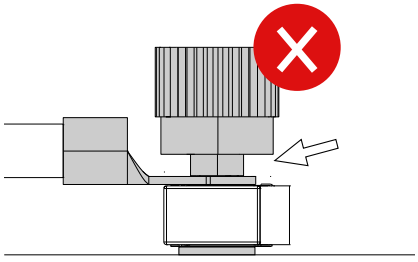


Figure 43. Incorrect installation

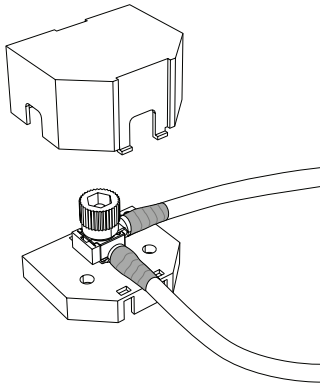


Figure 44. Cover, fuse box

10 Lubrication and fluid level check

10.1 Lubrication

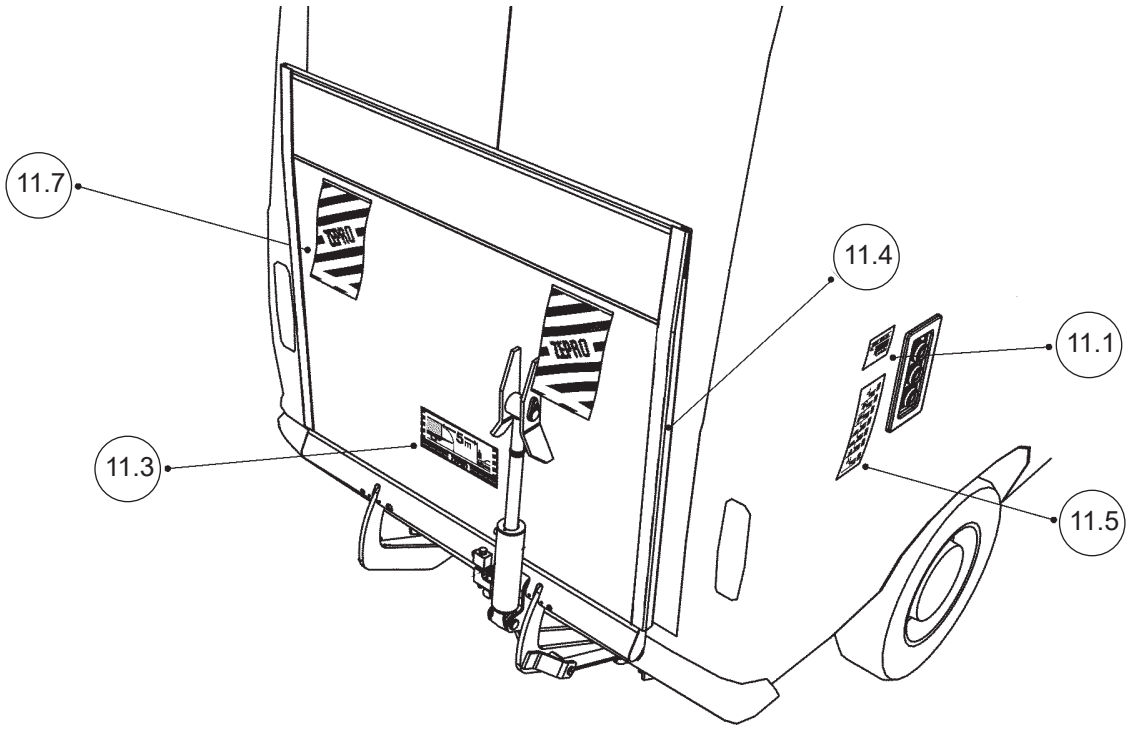
850 is equipped with slide bearings that must NOT be lubricated.

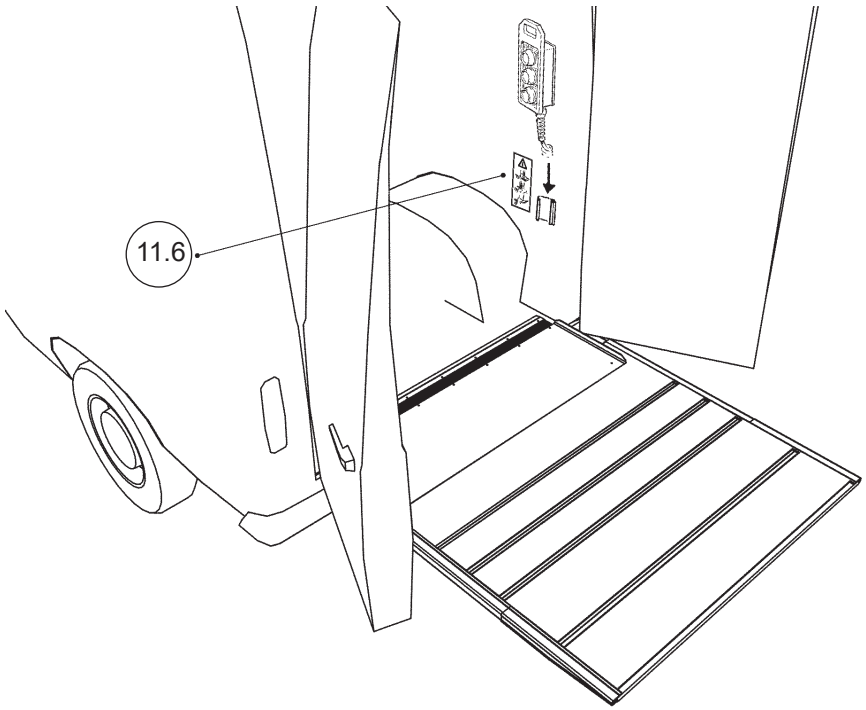
10.2 Fluid level check

Check the fluid level in the tank when performing servicing, 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 ().

11 Markings and decals

Below, an overview of the location of the different markings is shown. Image of markings and additional information can be found under the relevant subchapter for the following pages.





11.1 Load 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.

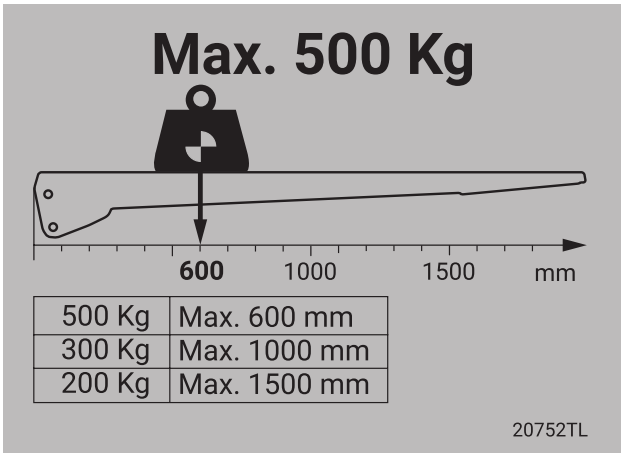


Figure 45. Load diagram ZHZ 500

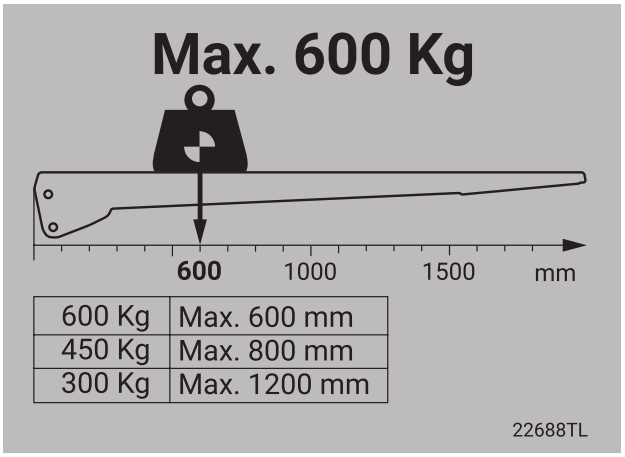


Figure 46. Load diagram ZHZ 600

11.2 Identification plate

The identification plate is fitted to the frame of the tail lift and contains the following information:

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

Corresponding identification plate in decal design, preferably located on the cab door pillar for reliable identification.

Figure 47. Identification plate

11.3 Work area

A “work area” decal must be attached to the platform so that any drivers parking behind the vehicle know that a 5 m clearance is required for the platform to open and that sufficient space should be left for loading and unloading.

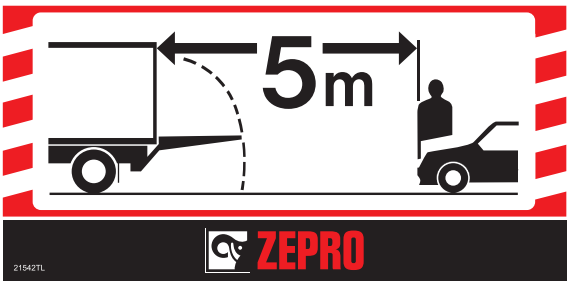


Figure 48. Work area

11.4 Warning tape

The warning tape is ideally attached along the platform’s edges to indicate the edges of the platform in the lowered position.

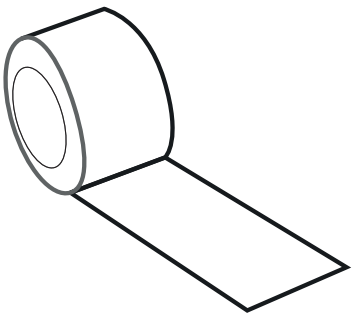


Figure 49. Warning tape

11.5 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.

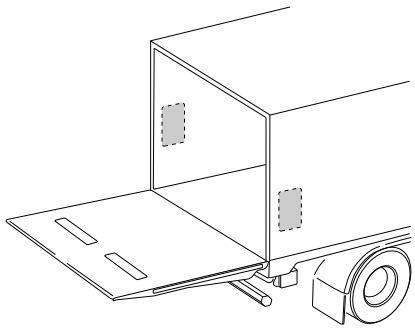


Figure 50. Standard mounting

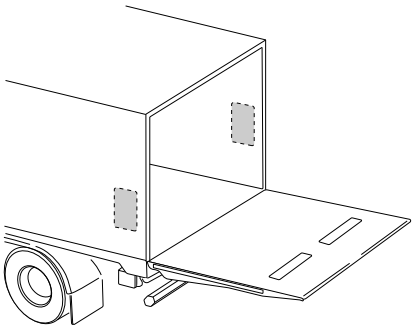


Figure 51. Reversed mounting

Control device	Sticker
CD 1, 9	55053TL*
CD 1,9 Horizontal	79854TL**
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*

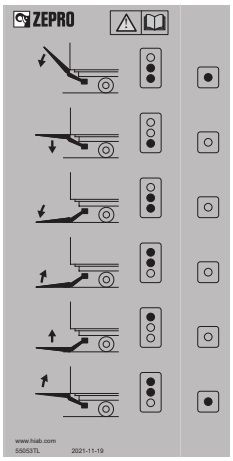


Figure 52. Control device sticker for CD 1, 9

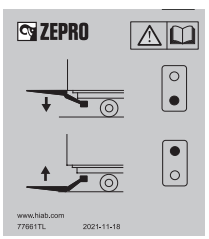


Figure 53. Control device sticker for CD 10

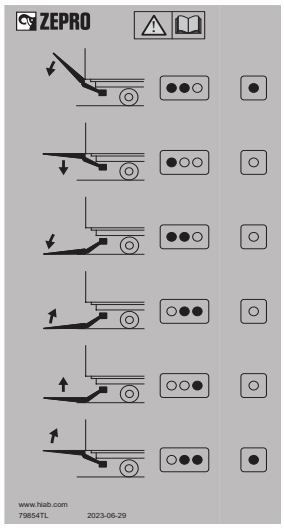


Figure 54. Control device decals for CD 1 and 9 for horizontal control device is ordered separately. 79854TL

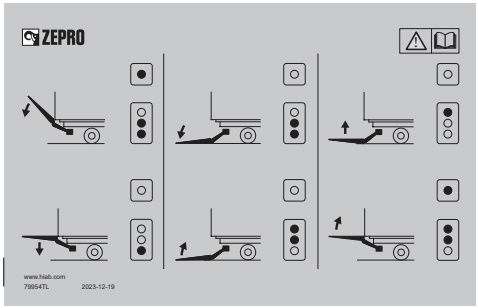


Figure 55. Control device decal for CD 1 with the two-hand button mounted above the control device.

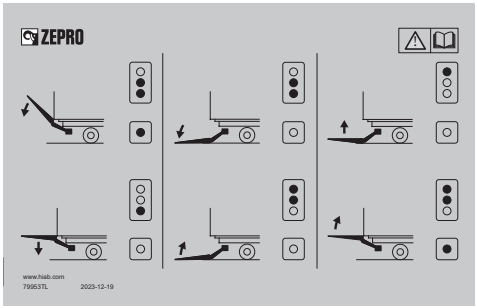


Figure 56. Control device decal for CD1 with two-hand button mounted below the control device.

11.6 Danger area

A “danger area” decal warns about the danger zone between the platform and the rear edge of the vehicle. The decal must be attached to the inside of the vehicle body, close to where the manual control device is installed.

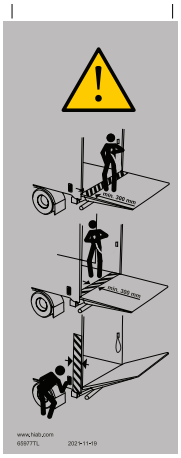


Figure 57. Danger area

11.7 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.

Figure 58. Warning flags

11.8 CE marking

The marking below represents the manufacturer’s guarantee that the lift is designed and supplied in accordance with the requirements stipulated in the EC Machinery Directive. This is the customer’s guarantee of high quality and safety.

CE

Figure 59. CE marking

12 Testing and verification

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

12.1 Static test loading

12.1.1 Deformation

Position the tail lift halfway up to 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 relevant 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 permanent deformation of the lift or its mounting.

12.1.2 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 in the vertical direction (points A and D) and not more than 2° in terms of the angle (points B and C) in relation to vehicle floor level.

12.1.3 Static load (test load 1.25 x tail lift loading capacity). For lifts with a load centre of 600 mm

Capacity	Load 250 kg	Load 500 kg
	Distance out on the platform (L)	
500 kg	1500 mm	750 mm
600 kg	1800 mm	900 mm

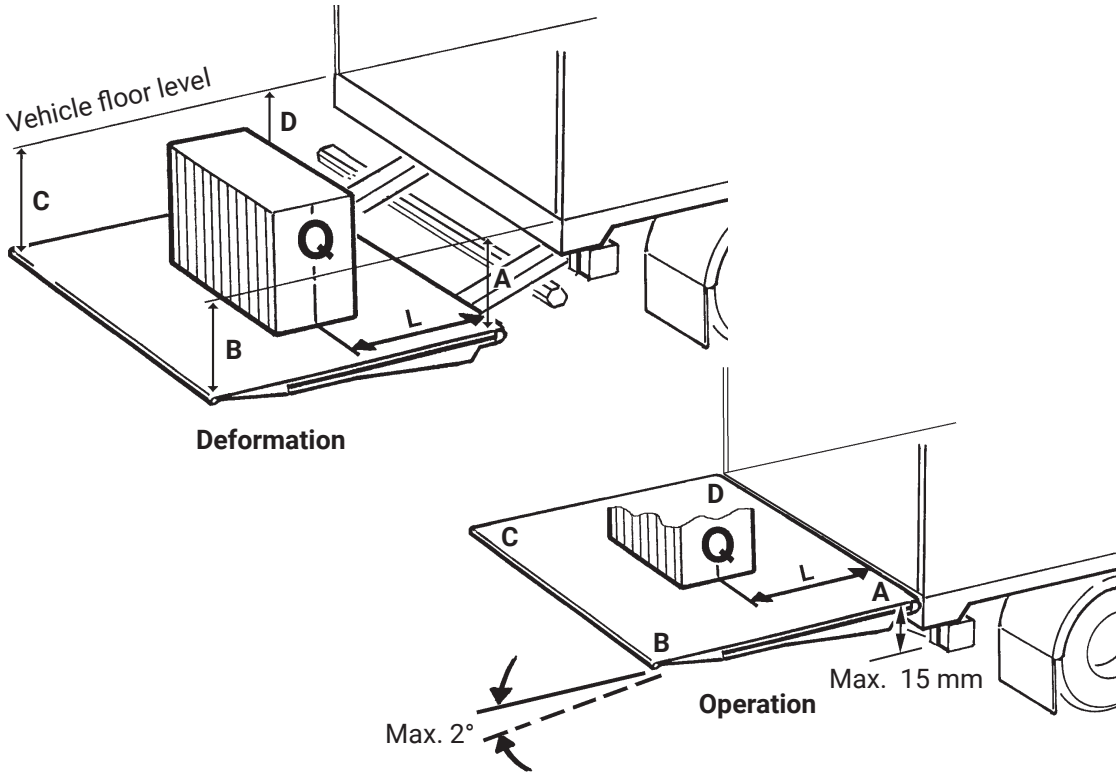


Figure 60. Testing and verification

12.2 Dynamic test loading.

12.2.1 Test with maximum load

Place a test load on the platform according to the table (for relevant 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 vehicle floor level.

12.2.2 Test with overload

Place a test load on the platform according to the table (for relevant tail lift model and lifting capacity).
The test load must be 1.25 x the relevant lift model's maximum load. Verify that the tail lift cannot lift the load when the up function is activated (it may be possible to tilt up the load, however).

12.2.3 Dynamic load (test load 1.0 x tail lift loading capacity). For lifts with a load centre of 600 mm

Capacity	Load 250 kg	Load 500 kg
	Distance out on the platform (L)	
500 kg	1200 mm	600 mm
600 kg	1440 mm	720 mm

12.3 Testing safety functions

The tail lift's safety functions must be tested.
Check:

- that the red light in the driver's cab is deactivated when the platform is completely closed against the body and, conversely, that it is activated when the platform is opened.
- 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 lift cannot be activated when the control switch in the cab is turned off.
- that the lift cannot be activated when the main switch's fuse by the battery is tripped.
- that the overflow valve is activated when the lift is run up to the vehicle floor level or end stops.
- that the lift cannot be lowered or tilted down when dismantling the electrical connection on the lift cylinders' or tilt cylinders' electrical hose rupture valves.
- that the platform's "max load" marking is present and correctly positioned according to the loading diagram for the lift model in question.
- that warning flags with reflective strips are installed and fulfil their function.
- that all warning and operating decals are installed in their respective position.
- that the platform's mechanical locking device is working (where applicable).
- that instructions for using the tail lift have been left in the cab.
- that a CE declaration of conformity has been certified.

13 Specifications

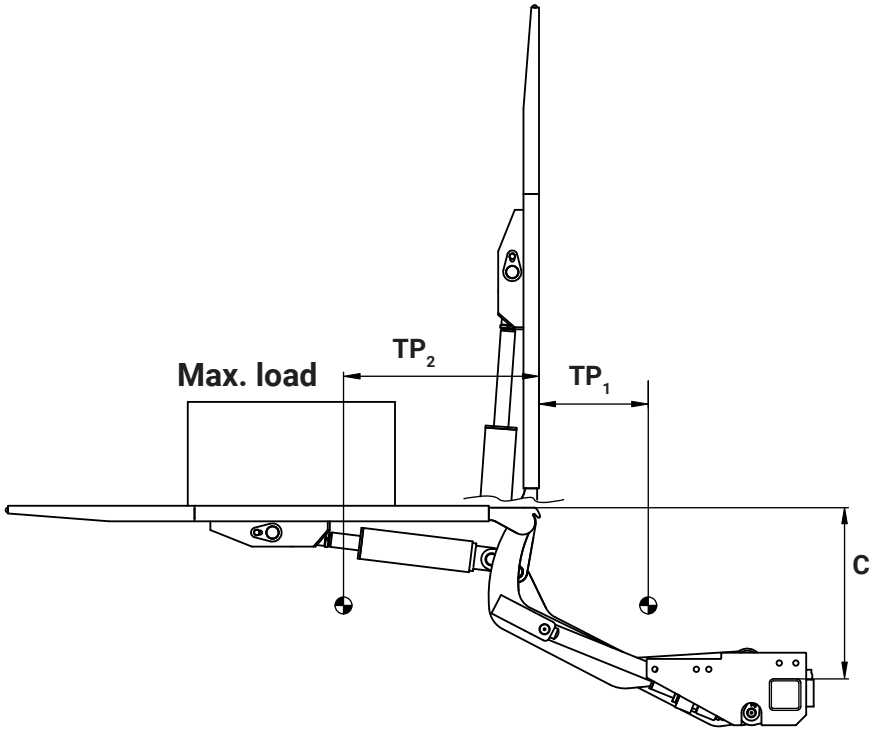
13.1 Weights

Many of the lift's components are heavy and therefore have to be lifted into place with the aid of lifting equipment. Make sure that the weight of the components does not exceed the maximum permitted load for the lifting equipment. Below is a list detailing a selection of components and their weight.

Complete lift chassis (without platform)	
	130 kg
Platforms	
Whole	
1200x1400 mm	55 kg
1400x1400 mm	58 kg
1600x1400 mm	64 kg
Folding	
1200x1400 mm	60 kg
1400x1400 mm	65 kg
1600x1400 mm	71 kg
Half	
1200x700 mm	40 kg
1400x700 mm	45 kg
1600x700 mm	51 kg

Lift components (included in complete lift chassis)	
Support frame	24.5 kg
Lift arm	22.5 kg
Support arm	5.1 kg
Link	1.7 kg
Step	9.7 kg
Hydraulic unit	13 kg
Lift cylinder	5.6 kg
Outer boom cylinder	7.2 kg

13.2 Load centre



ZHZ 500-600, alu. platform 1200x1400 mm

	C = 150	C = 300	C = 450
TP_1(mm)	185	160	113
TP_2(mm) 500 kg	413	417	423
TP_2(mm) 600 kg	496	500	508

14 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 instruction manual that it has been registered.

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.