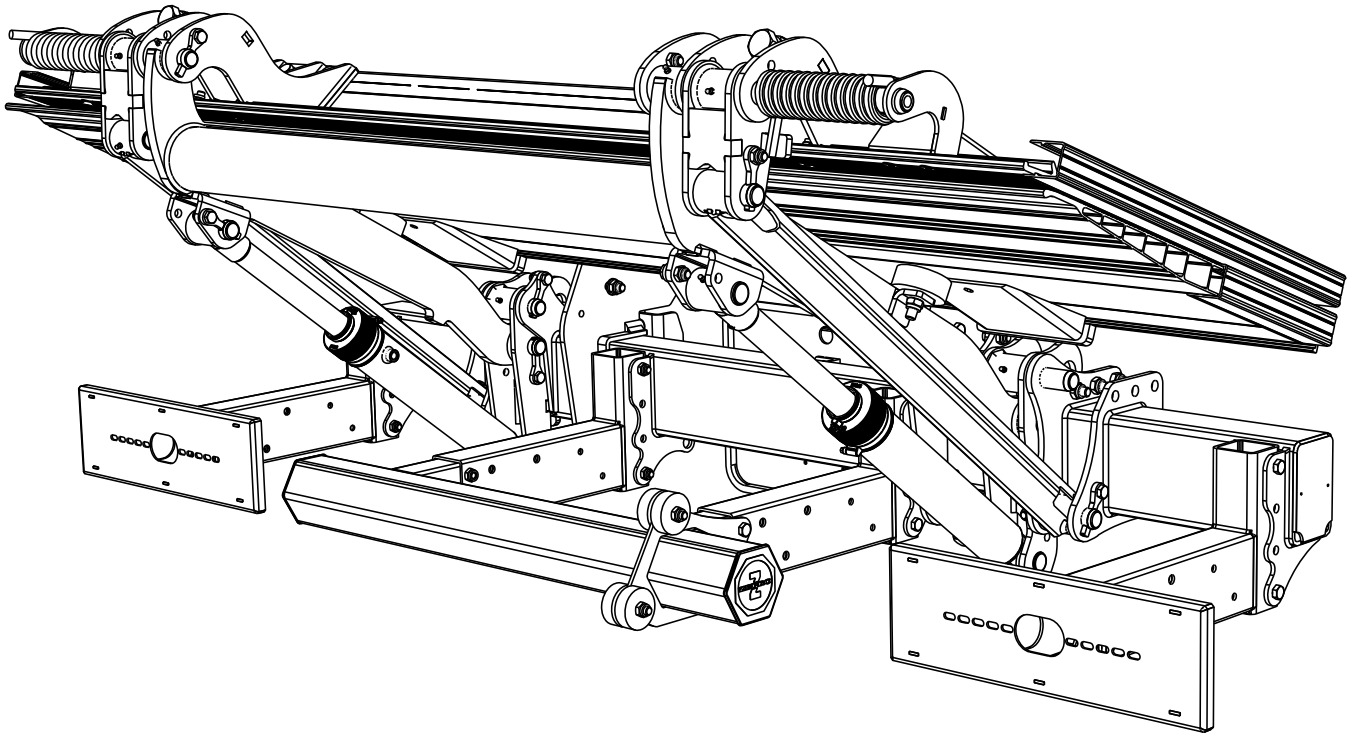
ZEPRO

Z-LYFTEN PRODUKTION AB

76312TL

INSTALLATION INSTRUCTIONS



ZR 10/15-135

28/06/2017

Sales
Mossvägen 8, 641 49 KATRINEHOLM, SWEDEN
Telephone: +46 (0)150 - 489550
Fax: +46 (0)150 - 489551
E-mail: zepro@zepro.com
Internet: www.zepro.com

Factory
Allévägen 4, 844 41 BISPGÅRDEN, SWEDEN
Telephone: +46 (0)696 - 17200
Fax: +46 (0)696 - 17242
E-mail: info@zepro.com
Internet: www.zepro.com

Contents

1 Introduction

1.1 Important

The following “warning markings” appear in the installation instructions and are intended to draw your attention to circumstances potentially causing unwanted situations, near misses, personal injury or damage to the product, etc.

NOTE.

Take care. Risk of damage to the product.

⚠ WARNING!

Take extra care. Risk of personal injury or damage to the product and the surroundings.

1.2 CE marking

Z-Lyften tail lifts on sale on the European market have been CE marked (CE stands for Conformité Européenne) since 1/1/1995. The manufacturer guarantees that the product complies with the EU Machinery Directive.

The aim of the Machinery Directive is to increase the safety of products throughout Europe.

There are some basic general rules that must be followed before Z-Lyften products are installed.

Follow the installation instructions. If it is not possible to follow the installation instructions or if changes must be made, the changes must be approved by the manufacturer. This is a consequence of CE marking rules. The manufacturer is unable to certify compliance with the Machinery Directive if the product is subsequently changed without its knowledge or approval. To retain a valid CE marking for the product, it is essential to contact Z-Lyften.

Welding is not necessary except where recommended by the manufacturer.

To improve safety we supply decals for the lift that are easy to understand regardless of the language. Make sure these decals are attached so that the information they contain can be seen by the lift operator.

Position control devices so that the operator is in the safest possible location and has a clear view of the load, the tail lift and the surrounding area. Follow the driver's instruction manual when using the control device and its functions.

CE

1.3 Hydraulic fluid

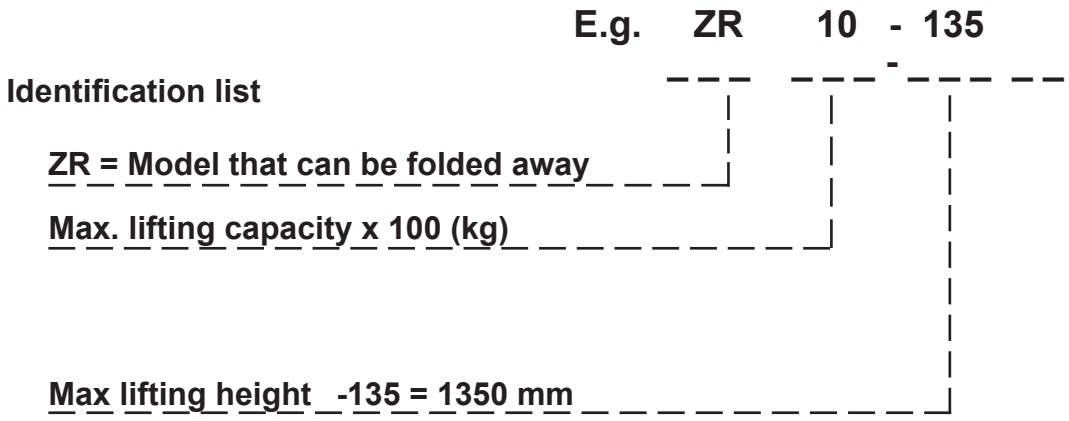
A tail lift must work just as well in tropical heat as in the Arctic cold. The heat is no problem for the fluid. Cold, on the other hand, is a big challenge for hydraulic fluid. That is why Z-Lyften chose a hydraulic fuel that can cope with all these conditions. Our hydraulic fluid (product no. 21963, 1 litre) is made of highly refined mineral oil. The anti-wear additives are zinc-free and provide excellent wear protection.
The special temperature properties of the hydraulic fluid and the high viscosity index mean that the hydraulic system can be started in cold weather and runs reliably in fluctuating operating temperatures. Our hydraulic fluid also provides excellent corrosion protection for the hydraulic system.

We also offer a biodegradable hydraulic fluid (environmental fluid) as an option (product no. 22235, 1 litre) made of a synthetic base oil called polyalphaolefin, which is biodegradable. This base oil has outstanding properties at low and high temperatures. The fluid stays liquid down to temperatures as low as -50°C. Oxidation stability is very good, resulting in a long service life with longer replacement intervals. The fluid is easy to pump thanks to good filtering and air separation properties and low density. This minimises the risk of cavitation and foaming. Contact us for more information.

NOTE.

So-called ATF fluid or HF fluid cannot be used with Z-Lyften. These fluids affect the rubber in the gaskets and seals and shorten service life.

1.4 Identification



2 Safety rules

2.1 Repainting

NOTE.

Piston rods and cylinder covers must not be painted. Painting could damage the cylinder gaskets.

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

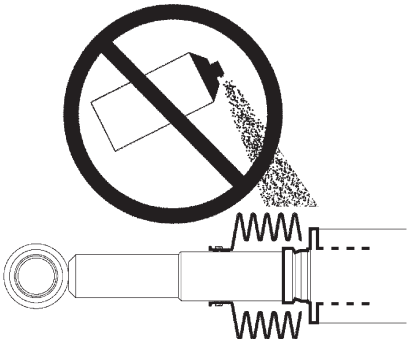


Image 1. Piston rods, cylinder covers and boots must not be painted/coated

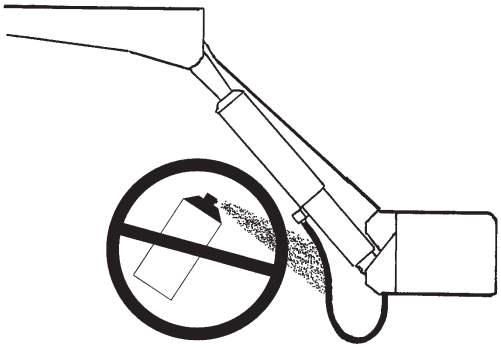


Image 2. Hydraulic hoses must not be painted/coated

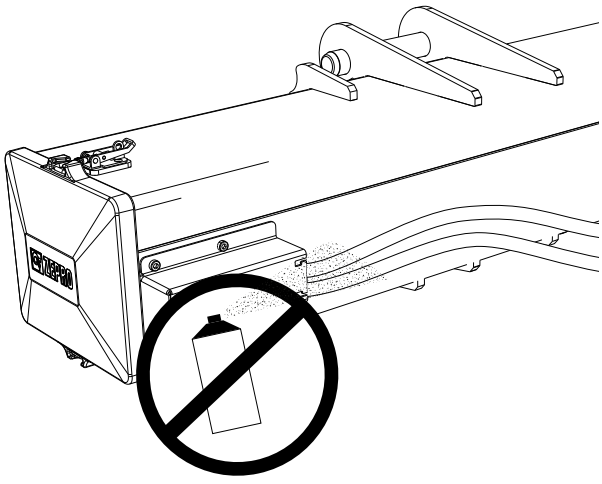


Image 3. Cables must not be painted/coated

2.2 Transport plug

NOTE.

When the lift is installed, the transport plug in the hydraulic unit must be removed and replaced with the normal tank cap supplied with the hydraulic unit.

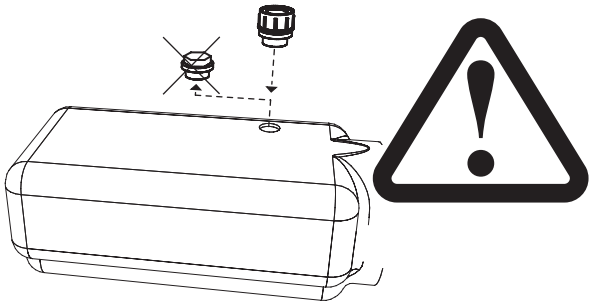


Image 4. Replace the transport plug with the normal tank cap

2.3 Moving parts - free movement

⚠WARNING!

When the final inspection* takes place, 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).

*The final inspection must be carried out with the platform flat and tilted down 10°. The clearance from the closest part of the cylinder must be at least 40 mm.

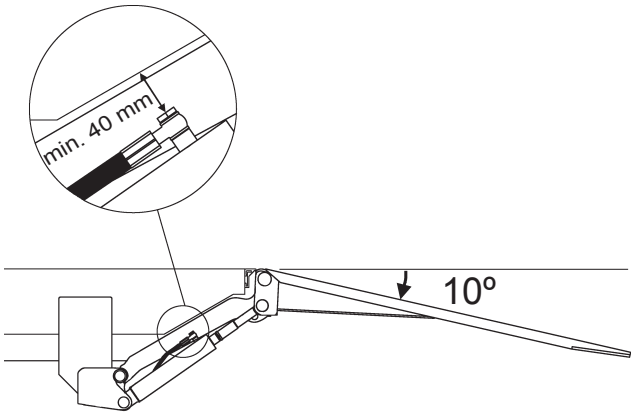


Image 5. Clearance to the closest part of the cylinder must be at least 40 mm

⚠WARNING!

The platform must not be titled down more than max. 10° from horizontal when people are on the platform.

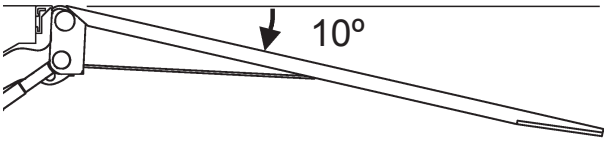


Image 6. The platform must not be tilted down more than 10° from the horizontal

2.4 Third-party equipment must not be attached

⚠ WARNING!

You must not attach third-party equipment (electric or hydraulic) to Zepro tail lifts. Attaching third-party equipment may interfere with the lift system and the 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.

2.5 Installation

⚠ WARNING!

The platform must not be installed so it cannot reach ground level.

⚠ WARNING!

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

3 Installation workflow

3.1 Installing the support frame

- Calculating the installed dimensions
- Do the necessary cut out from the frame and floor
- Aligning the support frame
- Mounting chassis brackets
- Install the support frame
- Uninstall the transport lock

3.2 Electrical connections

- Installing the control devices
- Installing the control device cables
- Installing the main power cable

3.3 Attaching decals

4 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. The measurements in the table are intended to act as a guide. If the C dimension is actually in the middle between two values in the table, other measurements must be calculated on the basis of existing values in the respective column. It should be endeavoured to set the lift to a height where dimensions B and C are as similar as possible. Ensure also that sufficient ground clearance is obtained.

4.1 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 (X dimension) and the space there will be between the lift arms in the upper position and the vehicle floor level (Z dimension).

4.2 X dimension

The X 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 X dimension can be obtained from the table.

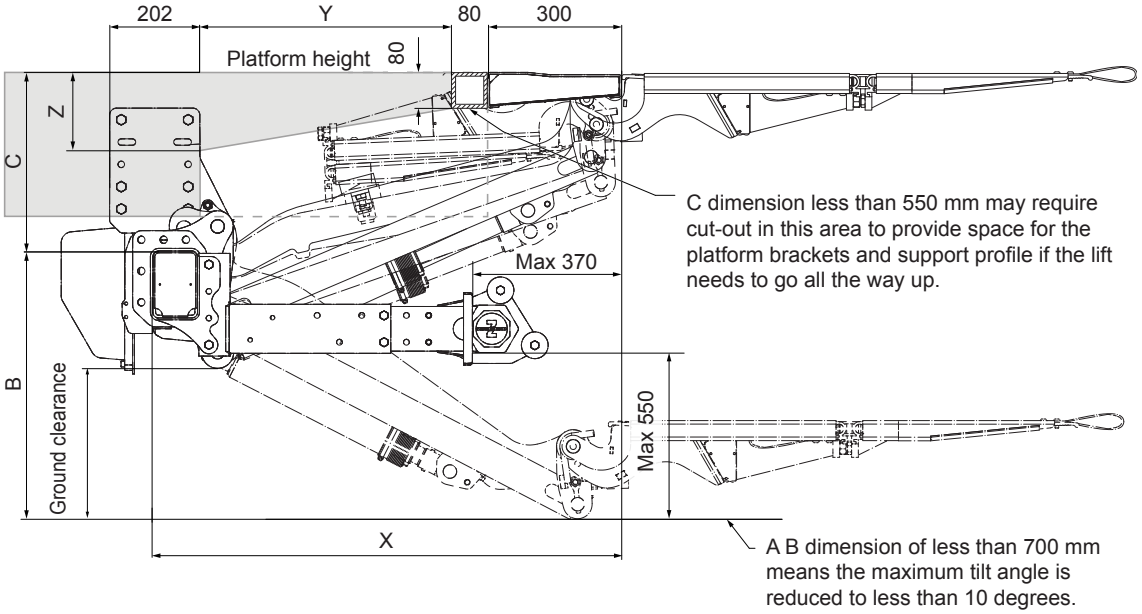
4.3 Y dimension

The Y dimension is the length of the cut-out than needs to be made in the frame.

4.4 Z dimension

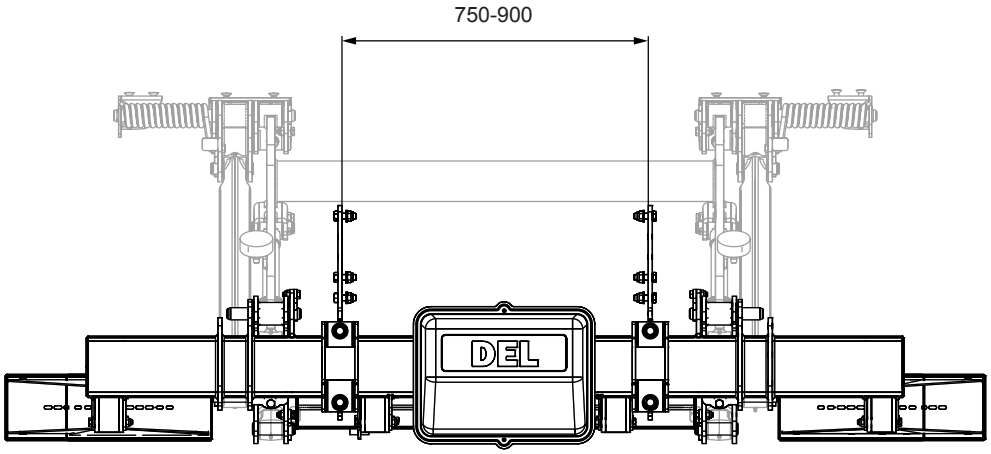
The Z dimension is the height of the cut-out than needs to be made in the frame.

4.5 Installed dimensions ZR10/15-135 for truck (Platform length: 1055 mm.)

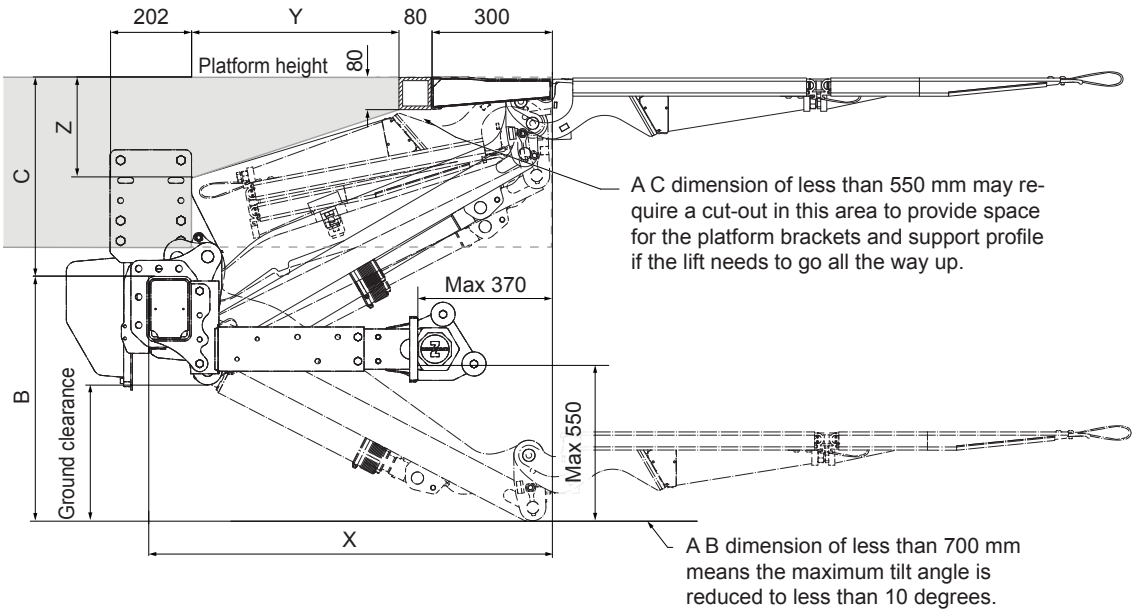


Lifting height: 920 - 1350 mm

C	X	Y	Z
675	868	383	400
650	891	406	390
600	933	448	340
550	969	484	300
500	1000	515	250
450	1027	542	200



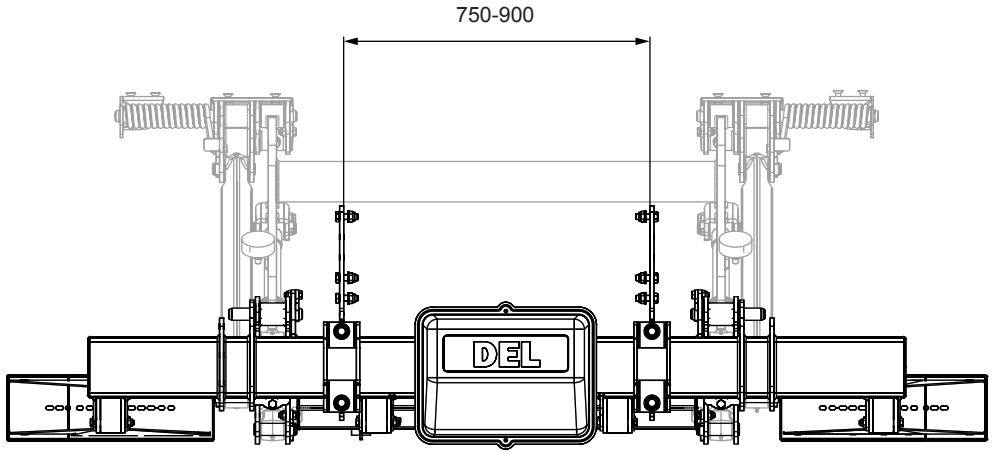
4.6 Installed dimensions ZR10/15-135 for truck (Platform length: 1315 mm.)



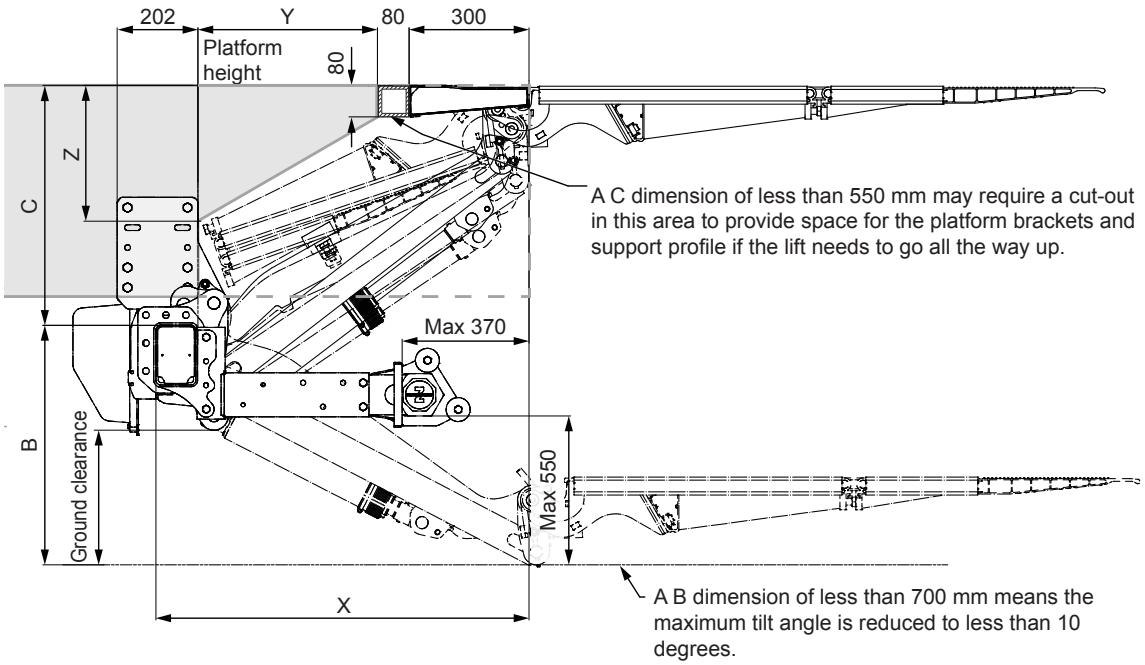
Lifting height: 970 - 1350 mm. Where lifting height is less than 1000 mm, consider a shorter platform!
Ensure sufficient ground clearance is obtained.

C	X	Y	Z
675	868	383	400
650	891	406	390
600	933	448	340
550	969	484	300
500	1000	515	250
450	1027	542	200

*Where C dimension is less than 450 mm, consider a shorter platform!



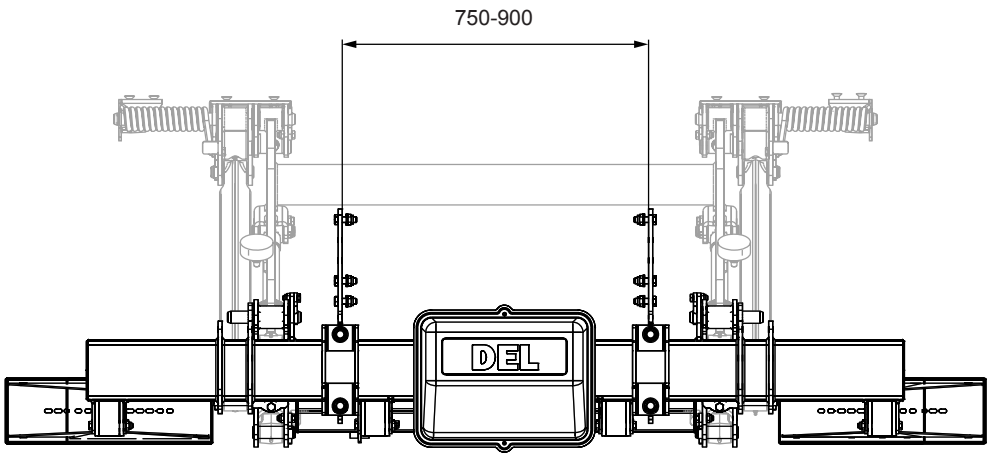
4.7 Installed dimensions ZR10/15-135 for truck (Platform length: 1440 mm.)



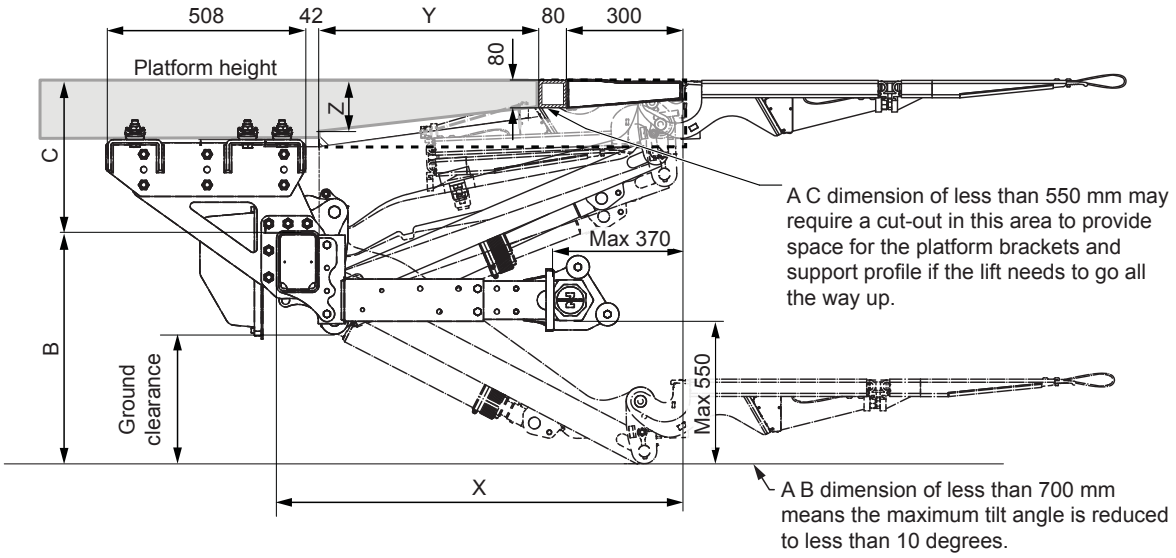
Lifting height: 1013 - 1350 mm. Where lifting height is less than 1060 mm, consider a shorter platform!
Ensure sufficient ground clearance is obtained.

C	X	Y	Z
675	868	383	400
650	891	406	390
600	933	448	340
550	969	484	300
500	1000	515	250
450	1027	542	200

*Where C dimension is less than 500 mm, consider a shorter platform!

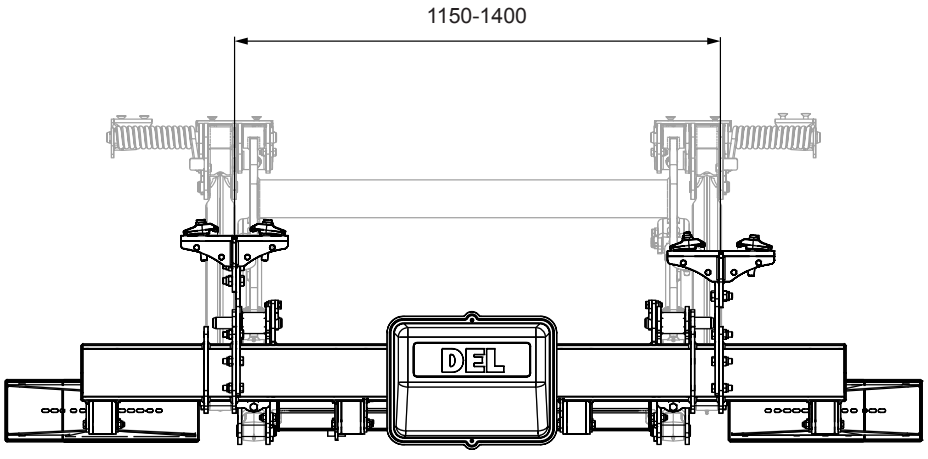


4.8 Installed dimensions ZR10/15-135 for trailer (Platform length: 1055 mm.)

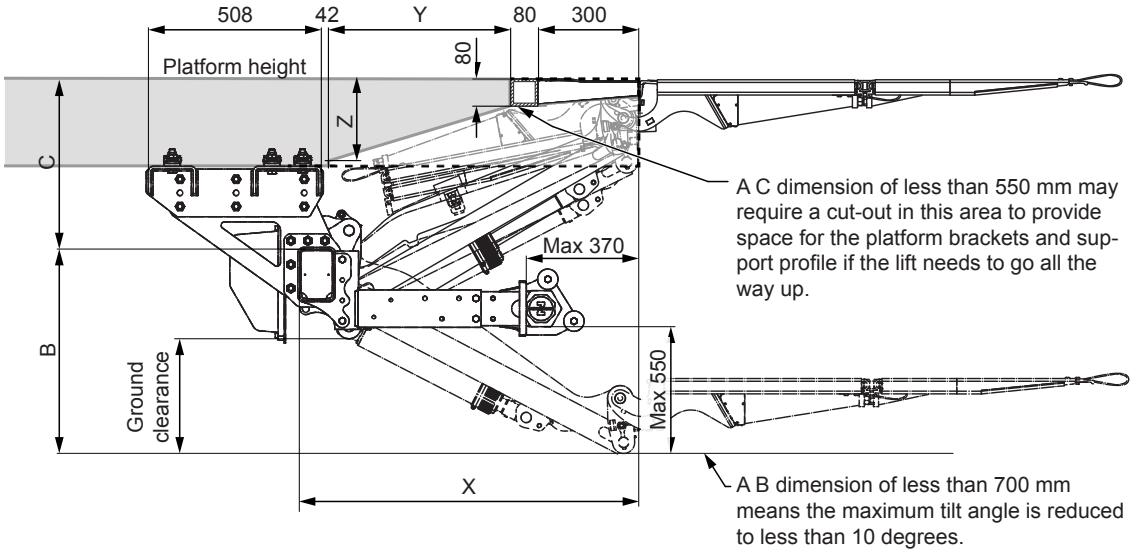


Lifting height: 920 - 1350 mm.
Ensure sufficient ground clearance is obtained.

C	X	Y	Z
675	868	383	400
650	891	406	390
600	933	448	340
550	969	484	300
500	1000	515	250
450	1027	542	200



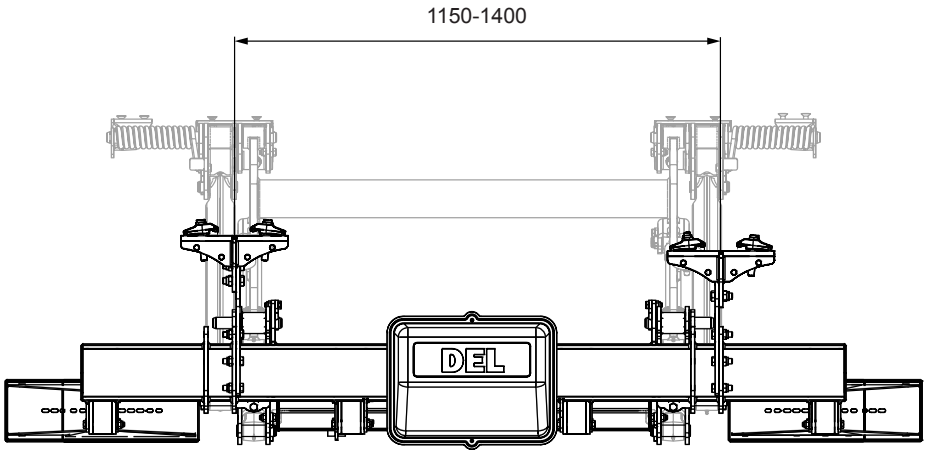
4.9 Installed dimensions ZR10/15-135 for trailer (Platform length: 1315 mm.)



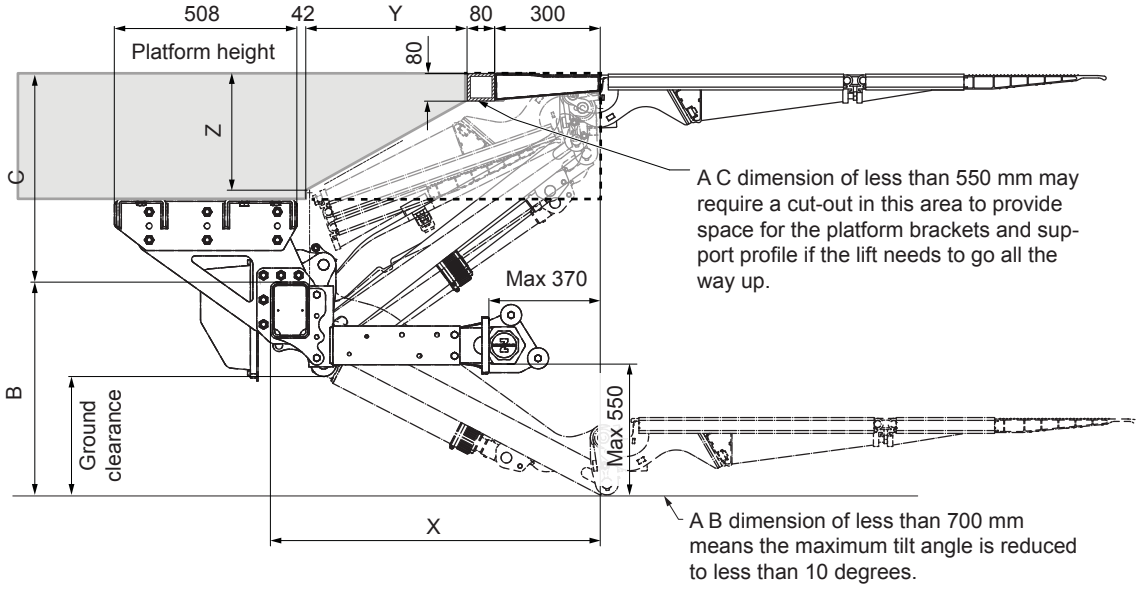
Lifting height: 970 - 1350 mm. Where lifting height is less than 1000 mm, consider a shorter platform!
Ensure sufficient ground clearance is obtained.

C	X	Y	Z
675	868	383	400
650	891	406	390
600	933	448	340
550	969	484	300
500	1000	515	250
450	1027	542	200

Where C dimension is less than 450 mm, consider a shorter platform!



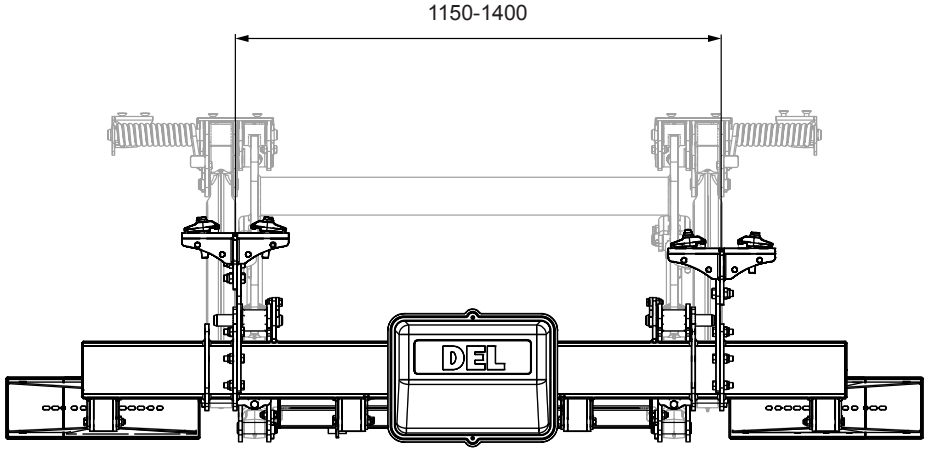
4.10 Installed dimensions ZR10/15-135 for trailer (Platform length: 1440 mm.)



Lifting height: 1013 - 1350 mm. Where lifting height is less than 1060 mm, consider a shorter platform!
Ensure sufficient ground clearance is obtained.

C	X	Y	Z
675	868	383	400
650	891	406	390
600	933	448	340
550	969	484	300
500	1000	515	250
450	1027	542	200

*Where C dimension is less than 500 mm, consider a shorter platform!



5 Installation

NOTE.

Also consult the vehicle manufacturer's body instructions and Zepro's instruction booklet before installation.

⚠ WARNING!

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

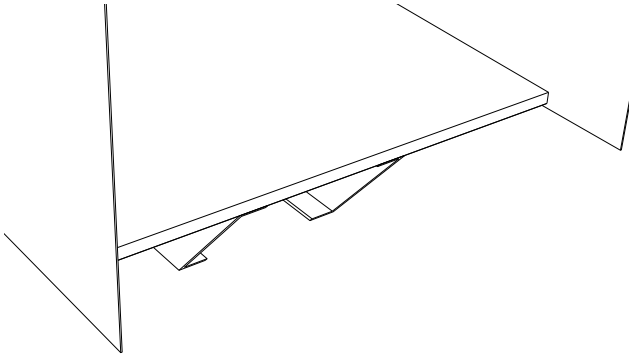


Image 7. Make a cut-out in the floor of the body.

5.1 Floor extension

1. Choose a suitable steel section to reinforce the floor with. In this example, we have chosen a 80x80 mm square section. See Image 8.
2. Make a cut-out in the floor of the body, see section "4 Calculating the installed dimensions" on page 12.
3. Make a cut-out in the chassis in accordance with the installed dimension, see section "4 Calculating the installed dimensions" on page 12.
4. Reinforce the edge of the floor where the floor extension is to be installed with previously selected steel section. Thoroughly weld the steel section securely to the chassis, see Image 8.
5. Adapt the width of the floor extension to the cut-out made in the floor of the body (width of the body).

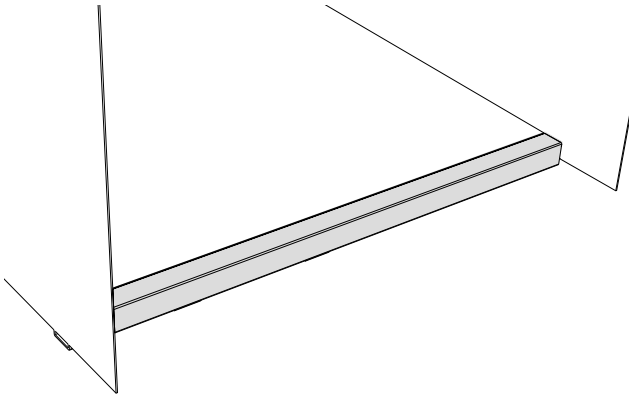


Image 8. Reinforce the edge of the floor where the floor extension is to be installed with a suitable steel section.

6. Align and securely weld the floor extension to the previously installed steel section with the cut-outs for the lifting arms pointing downwards and backwards. See Image 9.

NOTE!

The floor extension must be properly secured on both the upper and lower sides as this also acts as an armstop and is thereby also exposed to great upward forces.

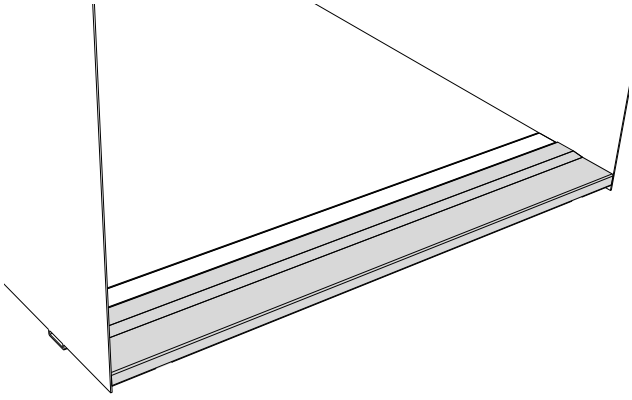


Image 9. Align and securely weld the floor extension to the previously installed steel section.

5.2 Chassis bracket for truck

The lift can be supplied with bracket for truck or trailer. For installation of bracket for trailer, see section 5.3.

1. Measure the width of the vehicle frame.
2. Install the brackets on the support frame so that its opening is facing the front of the vehicle and adjust its position on the frame so that it is centred on the frame and the distance between the brackets is slightly wider than the width of the vehicle frame.
3. Install the U-profile with associated washers and nuts, but do not tighten these. Screw the bolts alternately until the U-profile is aligned in contact with the frame, see Image 10.

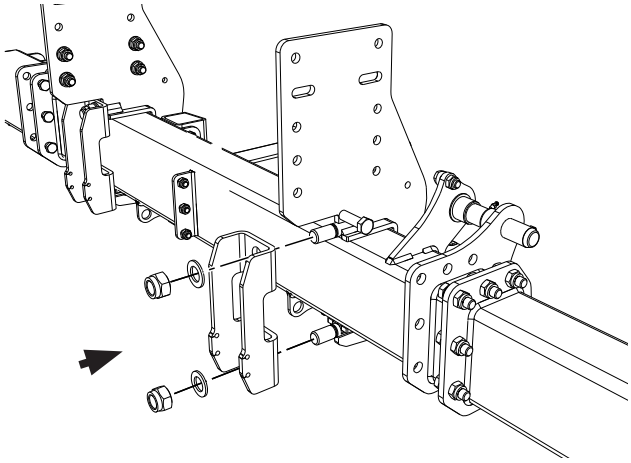


Image 10. Install the U-profile with associated washers and nuts, but do not tighten these.

5.3 Chassis bracket for trailer

The lift can be supplied with bracket for truck or trailer. For installation of brackets for truck, see section 5.2.

1. Measure the width of the vehicle frame.
2. Install the brackets on the support frame with its opening facing downwards. Where the frame width is greater than 1290 mm, the chassis brackets must be installed in positions C or D. Where the frame width is less than 1290 mm, the chassis brackets must be installed in position E, See Image 11.

   Choose an assembly kit that fits the relevant frame width as well as possible. The bracket can be further adapted to the width of the trailer chassis by installing the upper part of the bracket in positions A or B when setting the height of the bracket, see Image 11.
3. Screw each bracket on securely with the 5 accompanying bolts and nuts, see Image 12. Assemble without fully tightening the bolts.
4. Adjust the brackets to the required height and then install its upper section at the same time at the desired level A or B so as to best fit the chassis frame in question. See section 5.3.1.

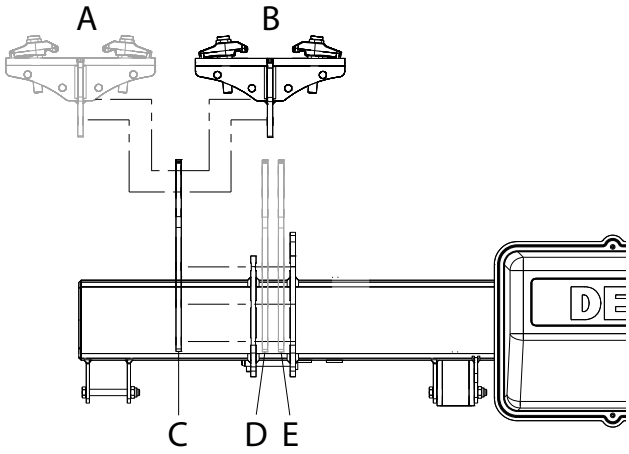


Image 11. The chassis brackets can be installed in three different positions (C, D and E) on the frame. The upper part of the chassis frame can be installed on the inside or outside (A or B) of the lower part.

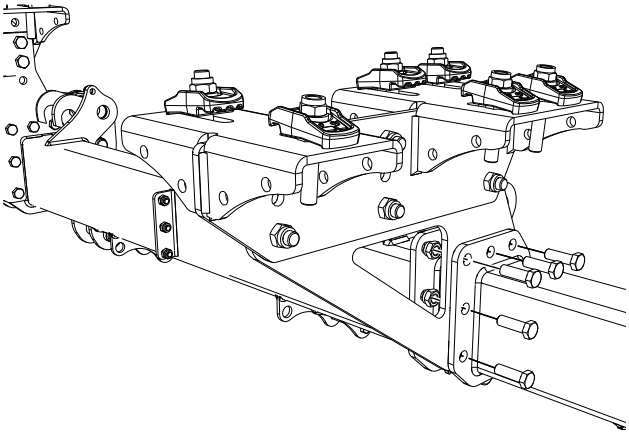


Image 12. Install the brackets on the support frame with its opening facing downwards.

5.3.1 Adjustment of the chassis brackets' height

The trailer chassis bracket can be adjusted to two different heights. This affects the distance between the lift's frame and the chassis (244 mm/284 mm). Take this into account when calculating the C dimension. The brackets can also be fitted differently depending on the chassis width, see Image 11.

1. Undo the 6 bolts and nuts holding the two parts of the bracket together, see illustration below.
2. Fit the two parts of the bracket in the correct position with the six bolts and nuts. Tighten the bolts using a torque wrench. **Tightening torque: 180 Nm.**

⚠ WARNING!

The parts must always be fitted using 6 bolts, two in each row of holes, Image 13.

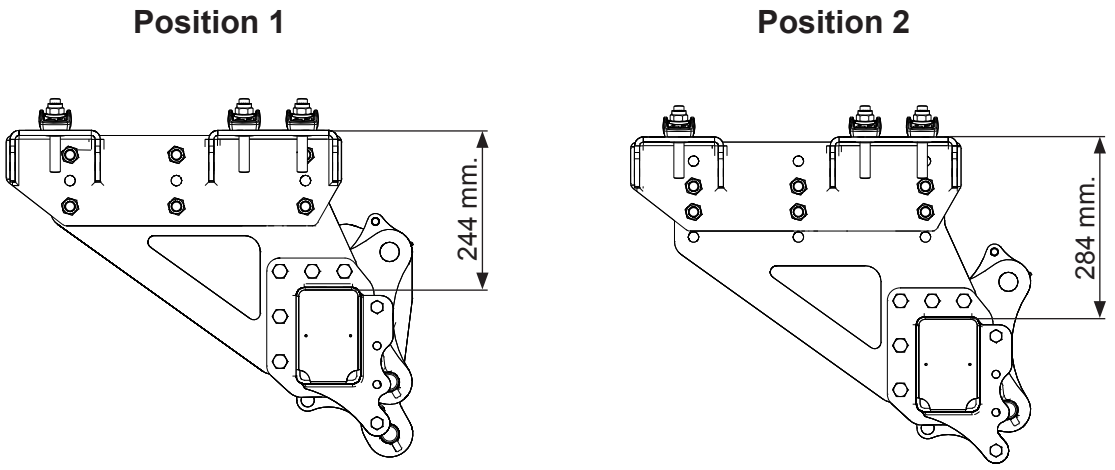


Image 13. Adjustment of the chassis brackets' height.

5.4 Support frame

In order to facilitate installation of the lift, two assembly supports are temporarily fitted to the rear edge of the platform.

1. Put the platform in a vertical position, ensure that the auxiliary springs remain unloaded.
2. Remove the auxiliary spring brackets on the platform's left and right hand sides, see Image 14.
3. Fold the platform out into a horizontal position.
4. Fit the assembly supports on the rear edge of the platform. Use the nuts and bolts the auxiliary spring brackets were fitted to and assemble in the same holes. First assemble the assembly supports using one bolt for each of them, do not tighten the nuts. Turn the assembly supports 90 degrees, see Image 15.
5. Push in the platform so that it is entirely flush with the floor extension. The frame can be lifted up to a suitable height by means of a garage jack.

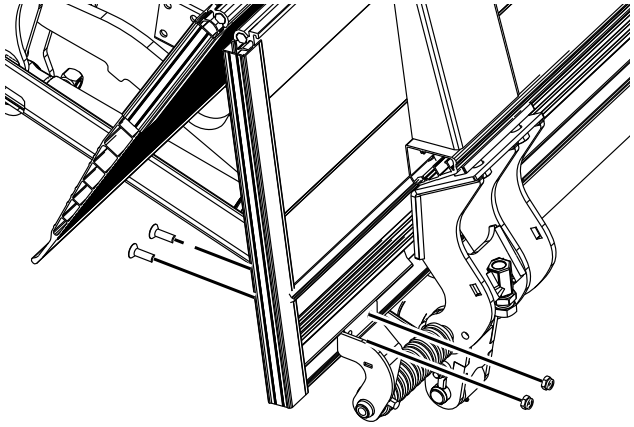


Image 14. Uninstall the auxiliary spring brackets.

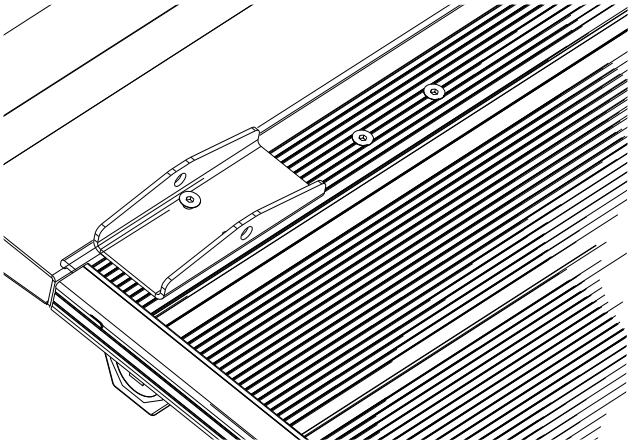


Image 15. Mount the assembly supports using one bolt each.

6. Turn the assembly supports 90 degrees and fit the other bracket bolt. Tighten the bolts and hang the platform onto the floor extension by means of the assembly supports.

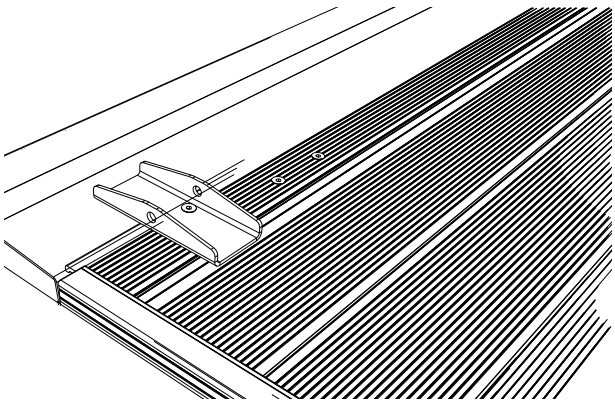


Image 16. Tighten the bolts and hang the platform onto the floor extension by means of the assembly supports.

For installation on trailer, see section 5.4.2.

5.4.1 Installation on truck

1. It should be endeavoured to set the lift to a height where measurements B and C are as similar to each other as possible. Ensure also that sufficient ground clearance is obtained. See section "4 Calculating the installed dimensions". Adjust the frame to the ideal height under the chassis.

   The frame must be positioned parallel with the floor extension and must not be in contact with the vehicle chassis; there must be a few millimetres of play. If necessary adjust the angle of the arms by carefully operating the lift.

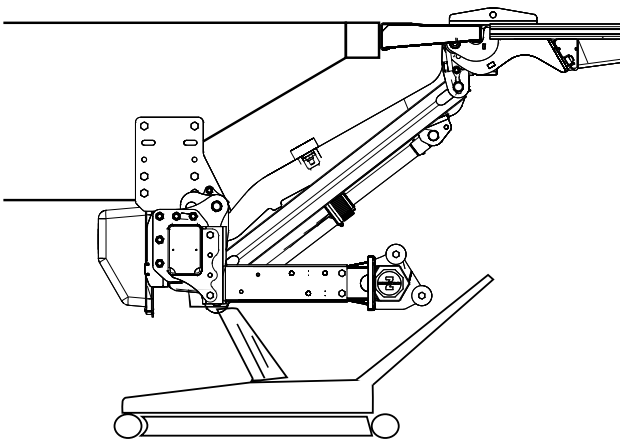


Image 17. Tighten the bolts and hang the platform onto the floor extension by means of the assembly supports.

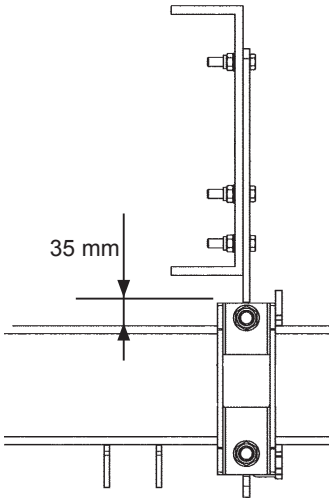


Image 18. The chassis bracket requires at least 35 mm clearance between vehicle chassis and support frame

2. Install first with a bolt in the bracket's slot-shaped holes. Ensure the platform is entirely flush with the floor extension. On the vehicle chassis, mark the middle of the brackets' slot-shaped holes and then drill Ø14 mm holes in the frame, see Image 19.

3. Bolt the brackets securely on the outside of the vehicle chassis. Use M14x45 bolts and install the associated washer and nut on the inside of the vehicle chassis. Install the bolts but do not tighten.

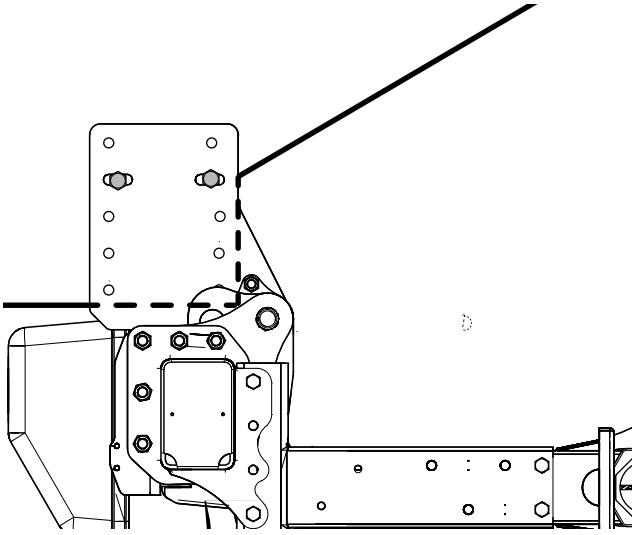


Image 19. Install first using one bolt in the bracket's slot-shaped holes.

4. With the frame parallel to the vehicle chassis, ensure that the platform is at an upward angle of approx. 2 degrees in an extended position. Where necessary adjust the angle of the platform by means of the adjustment bolts, see Image 22.
5. Check and perform fine adjustment regarding the position of the lift. Ensure the platform is entirely flush with the floor extension. Using a torque wrench, tighten the bolts previously fitted to the elongated holes of the brackets. **Tightening torque: 120 Nm.**

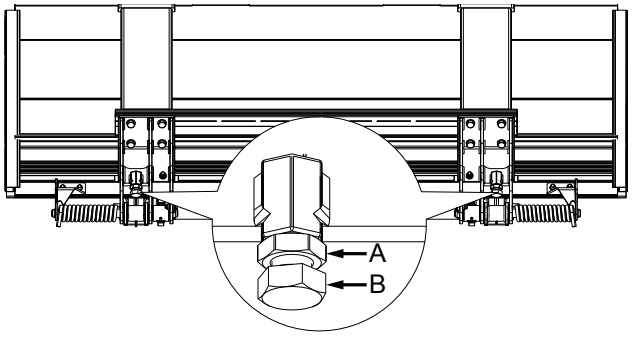


Image 22. Adjustment of the angle of the platform.

6. Using a torque wrench tighten the nuts that hold the U-profiles on the chassis brackets, see Image 20.
Tightening torque: 280 Nm.
7. Drill holes in the vehicle chassis for mounting bolts, Ø14 mm. Drill in the outer holes of each bracket. Use M14x45 bolts and install the associated washer and nut on the inside of the vehicle chassis. Installation must be performed with at least 6 bolts in the outer holes. The bolt that was installed initially in the slot-shaped hole may not be included in this figure. If necessary, this bolt can now be moved to one of the outer holes, see Image 21.
8. Using a torque wrench, tighten the bolts. **Tightening torque: 120 Nm**.

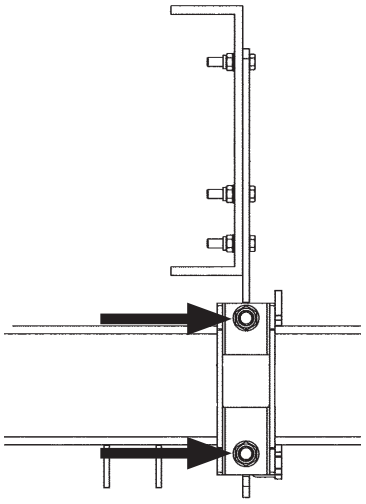


Image 20. Thechassis brackett requires at least 35 mm clearance between vehicle chassis and support frame.

NOTE.

Welding is not permitted on the chassis brackets.

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

Do not place the lift under load until:

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

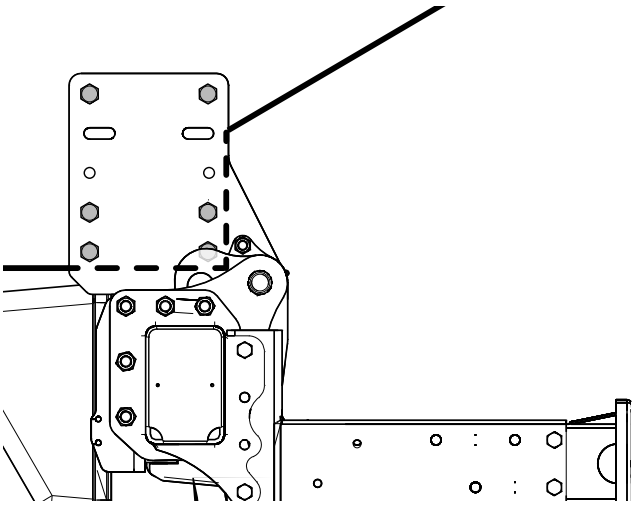


Image 21. Install the chassis bracket with at least six M14x45 10.9 bolts.

9. Remove the assembly supports.

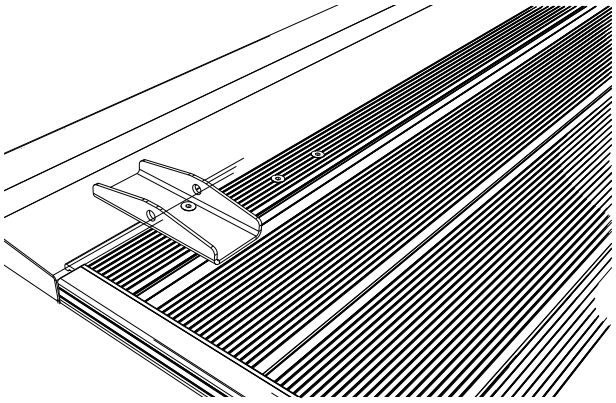


Image 24. Remove the assembly supports.

10. Refit the auxiliary springs and their brackets, see illustration. Tighten the bolts using a torque wrench. **Tightening torque: 80 Nm.**

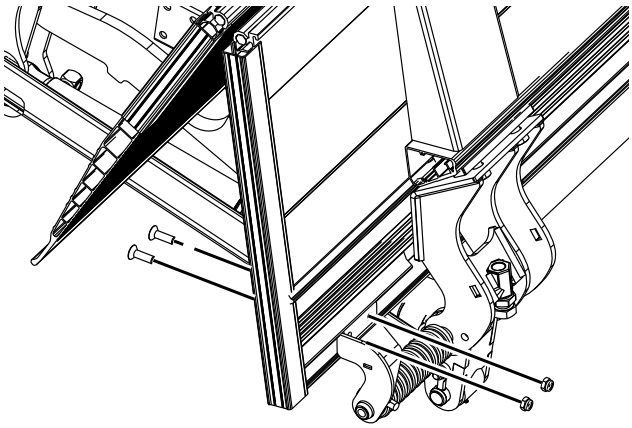


Image 23. Refit the auxiliary spring brackets.

5.4.2 Installation on trailer

1. It should be endeavoured to set the lift to a height where measurements B and C are as similar to each other as possible. Ensure also that sufficient ground clearance is obtained. See section "4 Calculating the installed dimensions". If necessary you can adjust the height of the bracket by installing its upper and lower parts in an alternative pattern of holes. See section "5.3.1 Adjustment of the chassis brackets' height". Lift up the frame so that the chassis brackets are totally flush with the chassis. If necessary adjust the angle of the arms by carefully operating the lift.
2. Fit the support frame to the trailer chassis using the clamps, without tightening these, see Image 25.
3. With the chassis brackets entirely flush with the chassis, ensure that the platform is at an upward angle of approx. 2 degrees in an extended position. Where necessary adjust the angle of the platform by means of the adjustment bolts, see Image 27. First slacken the lock nuts (A), turn the adjustment bolts (B) and then fold out the platform to check its angle. Where necessary repeat the adjustment of the bolts. Once adjustment is complete, ensure that the platform rests against both bolts. Then lock it into position by tightening the lock nuts.
4. Ensure the platform is entirely flush with the floor extension. Tighten the clamp bolts using a torque wrench. **Tightening torque: 180 Nm.**

NOTE.

Welding is not permitted on the chassis brackets.

Do not move the lift all the way to the armstops before all the bolts are fully tightened against the chassis.

Do not place the lift under load until:

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

5. Remove the assembly supports.

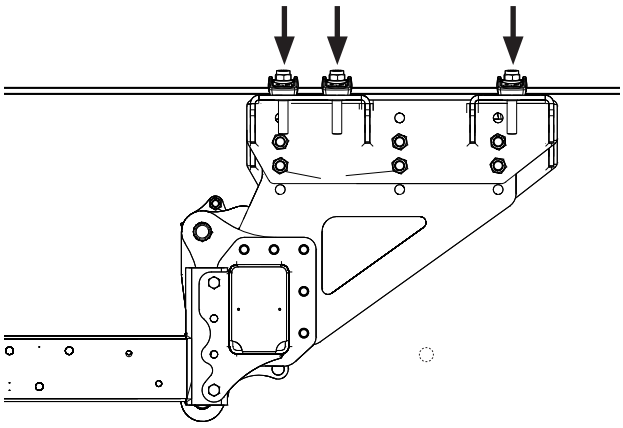


Image 25. Fit the support frame to the trailer chassis using the clamps.

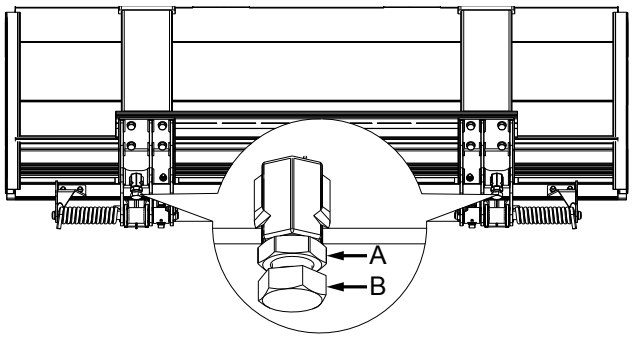


Image 27. Adjustment of the angle of the platform.

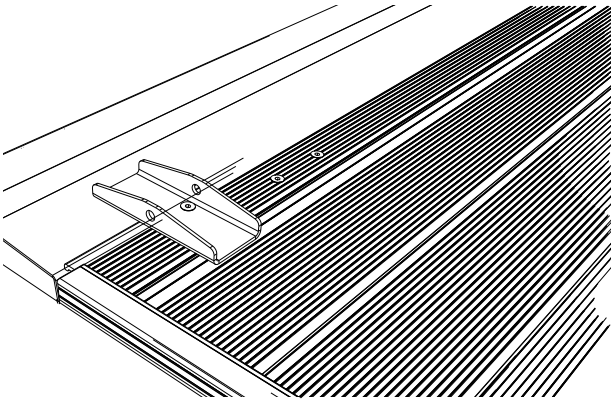


Image 26. Remove the assembly supports.

6. Refit the auxiliary springs and their brackets, see Image 28. Tighten the bolts using a torque wrench. **Tightening torque: 80 Nm.**

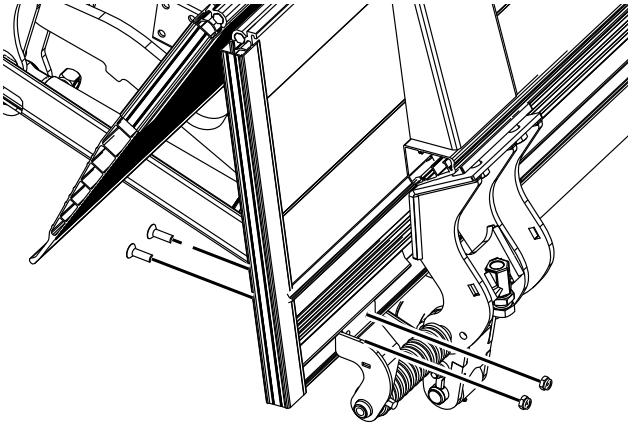


Image 28. Refit the auxiliary spring brackets.

5.4.3 Securing for transport

The tilt linkages are equipped with transport protection consisting of nuts and bolts that need to be removed before the lift is used.

1. Remove the nut and bolt on the transport lock on both right and left sides, see Image 29.

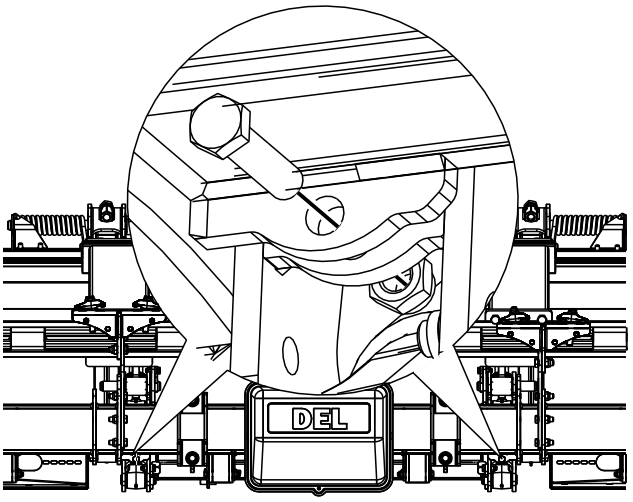


Image 29. The tilt linkages' transport protection.

5.5 Control power cable

NOTE.

See also the vehicle manufacturer's electrical instructions.

1. If the control power cable is not pre-routed, e.g. VDHH, route the control power cable from the driver's cabin to the lift.

NOTE.

The cable must be protected with rubber grommets when it passes through beams or walls. If there are quick connectors, make sure they are effectively protected from moisture and dirt.

2. Connect the control power cable to the cabin switch (CS) on the vehicle instrument panel. Connect via 10 A fuse according to the customer's requirements for the vehicles' electrical system. See "8 Electrical and hydraulic drawings" on page 36.

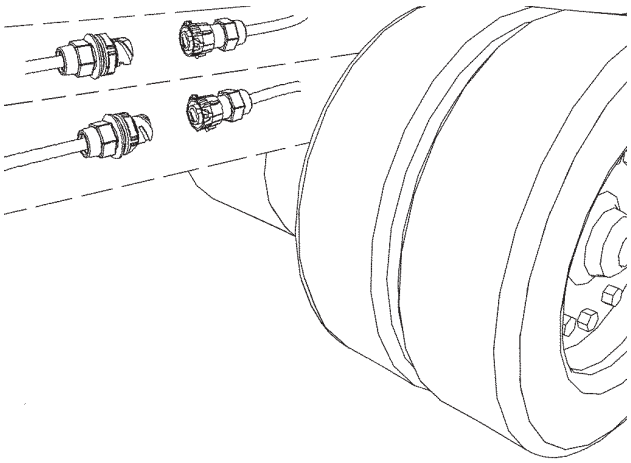


Image 30. Quick connectors must be well protected.

5.6 Control devices

One or two control devices can be connected to the lift. When only one control device is connected to the lift, a switch is fitted on the outside of the vehicle body, to which the control device can be connected when it is to be used.

When two control devices are connected to the lift, one is permanently connected to the outside of the vehicle body, the other is equipped with a coiled cable and knob for selecting the control device and this is fitted on the inside of the vehicle body.

1. Fit the control devices in the locations intended for this. They must be positioned so that the operator is in the safest possible location and has a clear view of the load, the tail lift and the surrounding area.

NOTE.

All cable inlets must be direct downwards.

2. Connect the cables of the control device to the hydraulic unit, see "8.3 Connecting control device" on page 38.

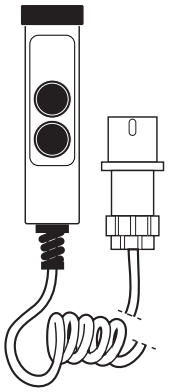


Image 31. Control device with a switch for connection on the outside of the vehicle body.

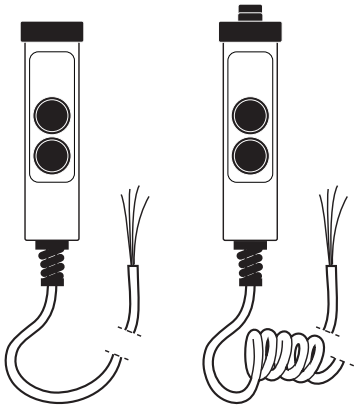


Image 32. One control device for permanent installation on the outside of the vehicle body and one with a coiled cable for installation inside the vehicle body.

5.7 Alarm for transport mode

ZEPRO recommends that a warning lamp be located in a very visible spot for the driver in the driver's cab. If the platform is not fully in transport mode, the lamp lights up when the ignition is turned on.

The arrangement consists of:

- Pressure sensor on the line to the hydraulic cylinders.
- Cable
- Inline fuse
- Lamp 12/24 V

5.7.1 Installation

1. Install the lamp in a very visible position for the driver in the driver's cab.
2. Connect in accordance with the relevant electrical and hydraulic diagrams, see section "8 on page 36. Install the cable so it is well protected. The cable must be protected with rubber grommets when it passes through beams or walls. If there are quick connectors, make sure they are effectively protected from moisture and dirt.

5.8 Main power cable

1. Route the main power cable from the lift to the battery. Pull the cable through the plastic casing.

NOTE.

The cable must not be tied to brake lines or the normal on-board electrical system.

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

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 short circuit and cable fires.

In general, care must be taken when laying all the cables in order to obtain a longer cable service life and to reduce the risk of unnecessary stoppages.

2. Fit a 150A 24V fuse to the main power cable from the battery to protect the electrical system from short circuit and fire risk.

NOTE.

The fuse box must be installed in a well protected position as close to the battery as possible.

3. Check that the hydraulic unit is effectively earthed. Certain commercial vehicle manufacturers provide special earth connection points.
4. Test all functions from all control devices.

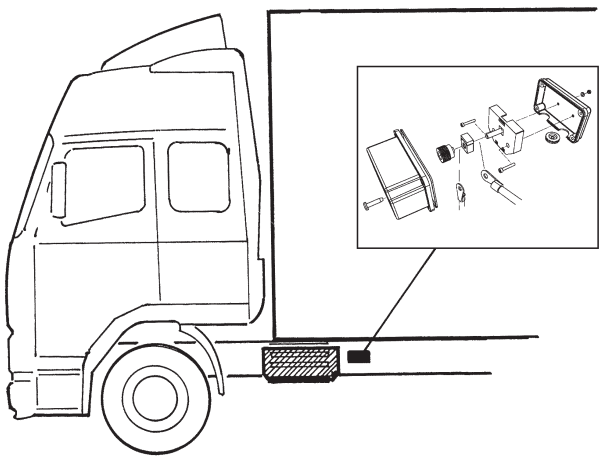


Image 33. The fuse box must be installed in a well protected position as close to the battery as possible

5.9 Underrun protection

5.9.1 Installation

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

1. Fit the inner part of each bracket at one of four heights. Select the height that meets the statutory requirements, see section "5.9.2 Statutory dimensions" on page 32. Use the correct bolts M12x100. Assemble without tightening the bolts, see Image 34.
2. Fit the outer part of each bracket at one of five positions. Select a position that meets the statutory requirements, see section "5.9.2 Statutory dimensions" on page 32.

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

   At the same time, fit the platform's support wheel on the right or left-hand side of the centre console, see . Use the correct bolts M12x80. Assemble without tightening the bolts. See Image 35.
3. Check that the installation meets the statutory requirements.
4. Tighten all the bolts using a torque wrench. **Tightening torque: 80 Nm.**
5. Fit the beam end caps on the centre console, rotated so the logo is the right way up, and press them firmly to secure. If necessary, tap carefully with a rubber mallet, see Image 37.
6. Fit the vehicle's rear lighting on the outer consoles.

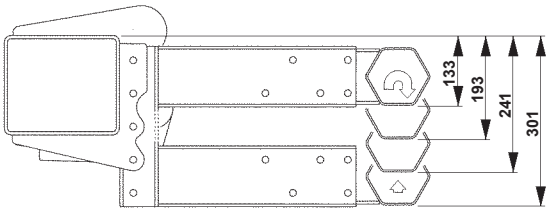


Image 34. The inner part of the brackets can be fitted at one of four heights

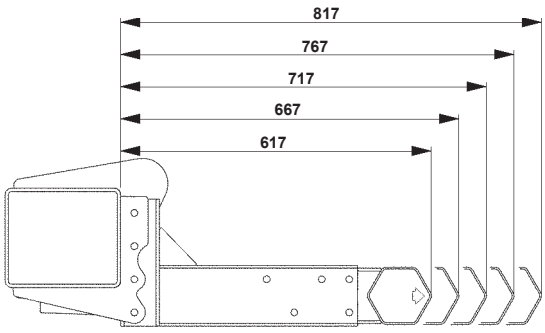


Image 35. The outer part of the brackets can be fitted in one of five positions

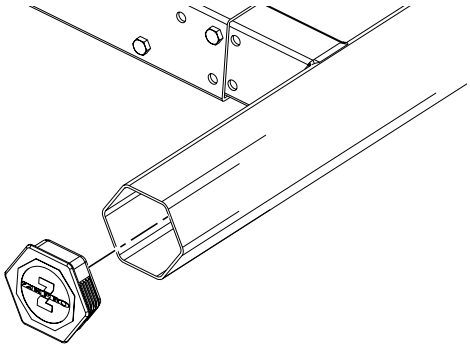


Image 37. Fit the beam end caps

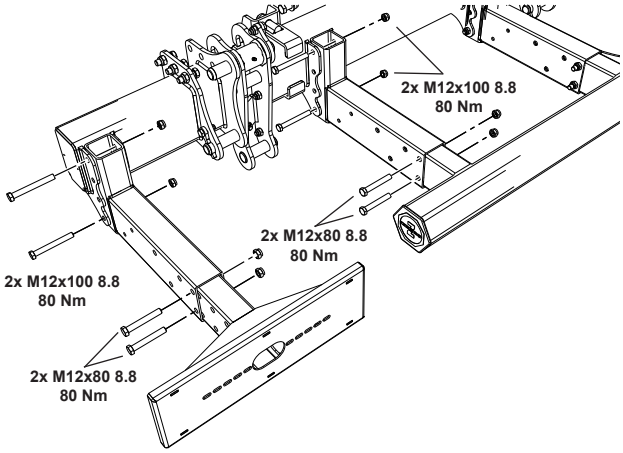


Image 36. Installing underrun protection

5.9.2 Statutory dimensions

- Distance between the beam and the ground when the vehicle is unloaded: Max. 550 mm. See illustration.
- Horizontal distance from the outermost part of the platform to the underrun protection: Max. 375 mm. See illustration.

NOTE!

The underrun protection may be placed further back and lower.

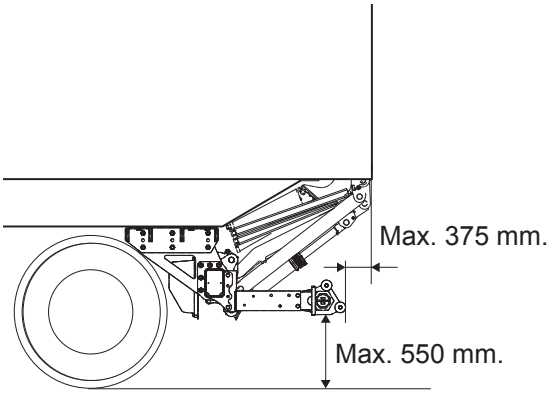


Image 38. Statutory dimensions

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

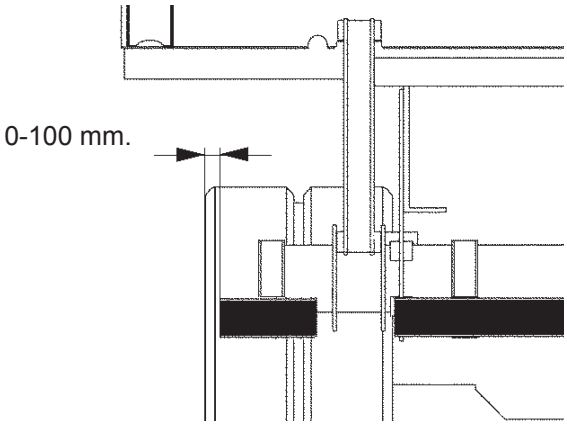


Image 39. Statutory dimensions

- 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 cm^2. See illustration.

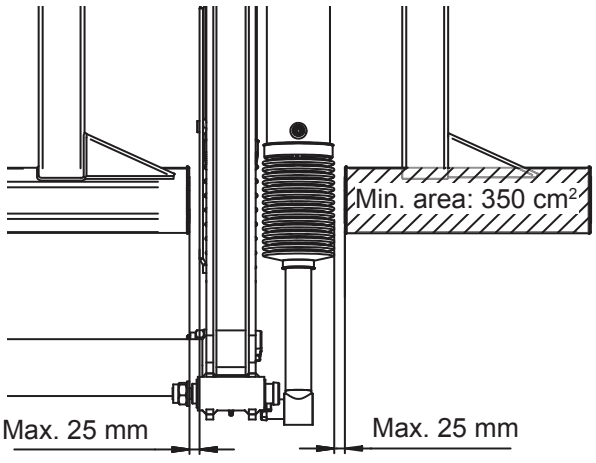


Image 40. Statutory dimensions

5.10 Purging the cylinders

Fully lower the platform a few times. You may have to lift the truck to fully lower the platform.

5.11 Transport lock

Electric hose breakage valves serve as locks for the platform. The lock opens automatically if the down function is actuated from the control device. The valves are non-return valves that let fluid in from the cylinders but not out before they are actuated by the flow from the lowering valve. The platform is thus hydraulically locked during transport.

6 Hydraulic system

The lift's hydraulic system is installed in a box on the front side of the frame. For access for, for example, installation, service and repairs, the protective cap needs to be removed.

1. Remove the protective cap, which is secured with two bolts, see Image 42.

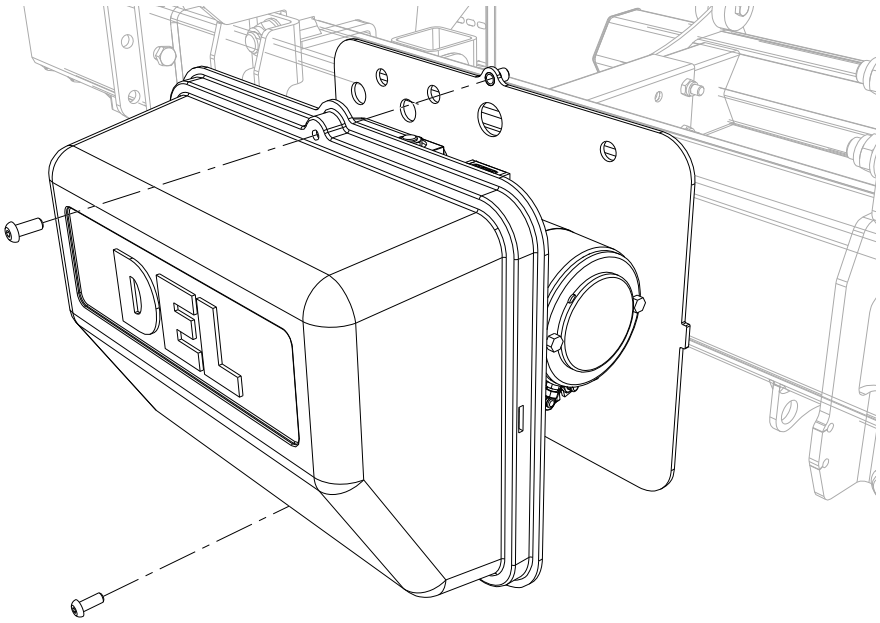


Image 42. The protective cap is secured with two bolts

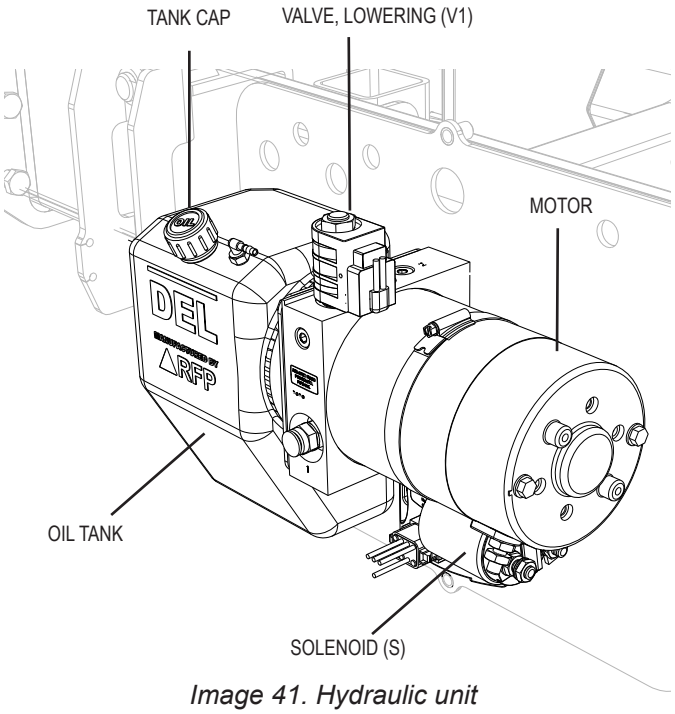


Image 41. Hydraulic unit

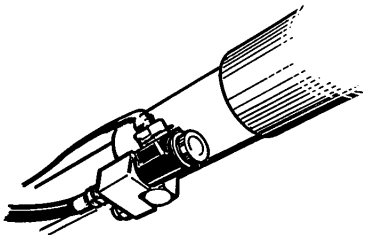
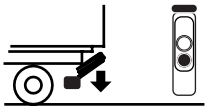
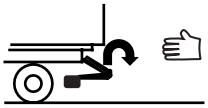
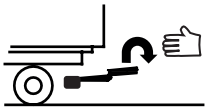
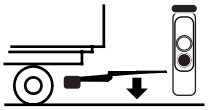
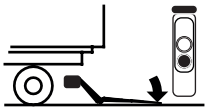
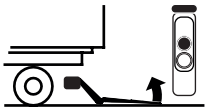
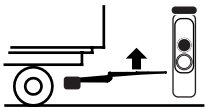
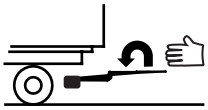
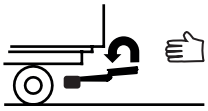
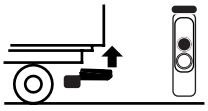


Image 43. Safety valve on cylinder (V2)

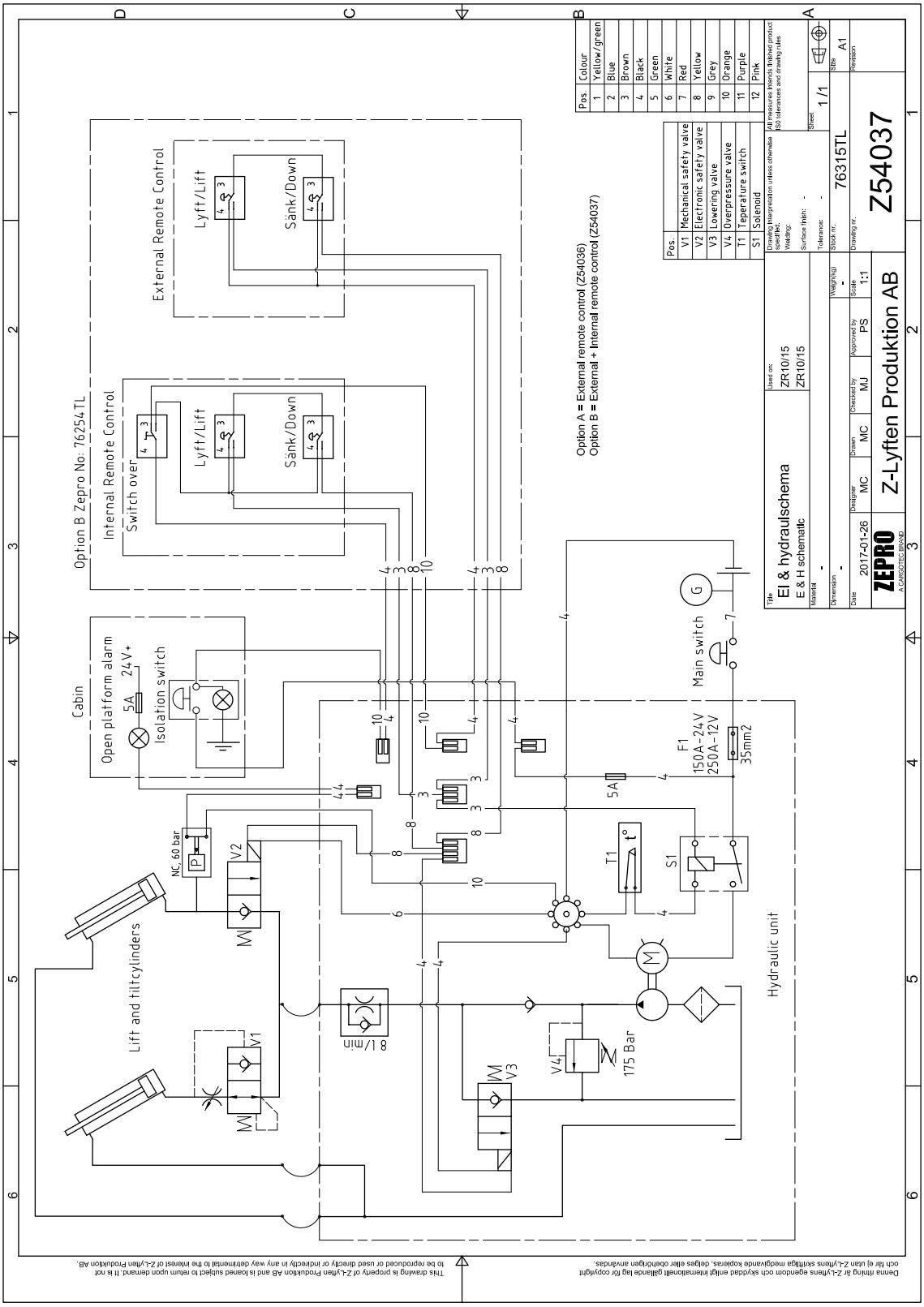
7 Functional schematic drawing

7.1 ZR 10/15

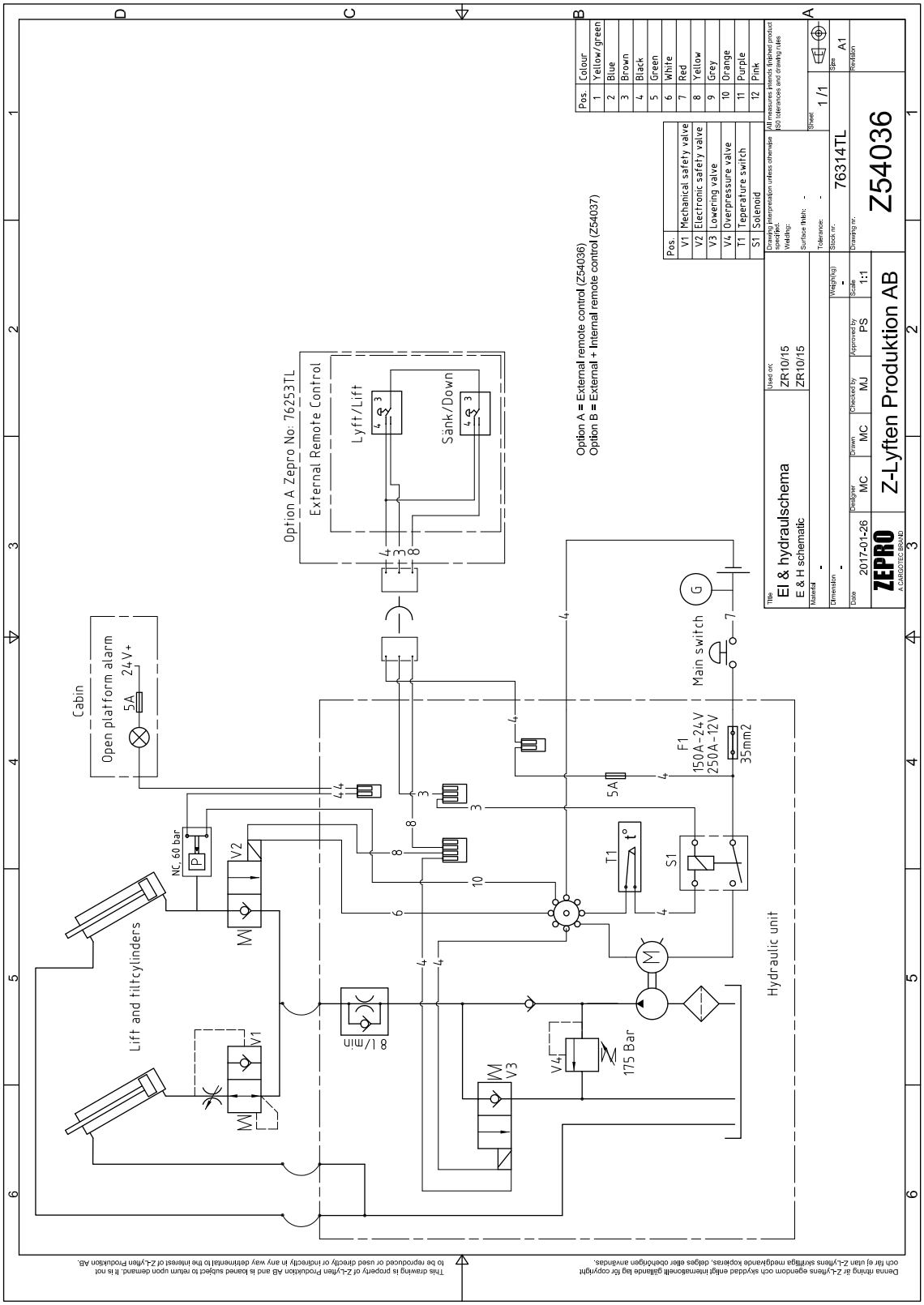
Function	Comment	Illustration
Lower		
	Platform is folded out manually	
	Platform is folded out manually	
Lower		
Lower	Autotilt	
High	Autotilt	
High		
	Platform is folded in manually	
	Platform is folded in manually	
High		

8 Electrical and hydraulic drawings

8.1 ZR 10/15 with two control devices



8.2 ZR 10/15 with one control devices



8.3 Connecting control device

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

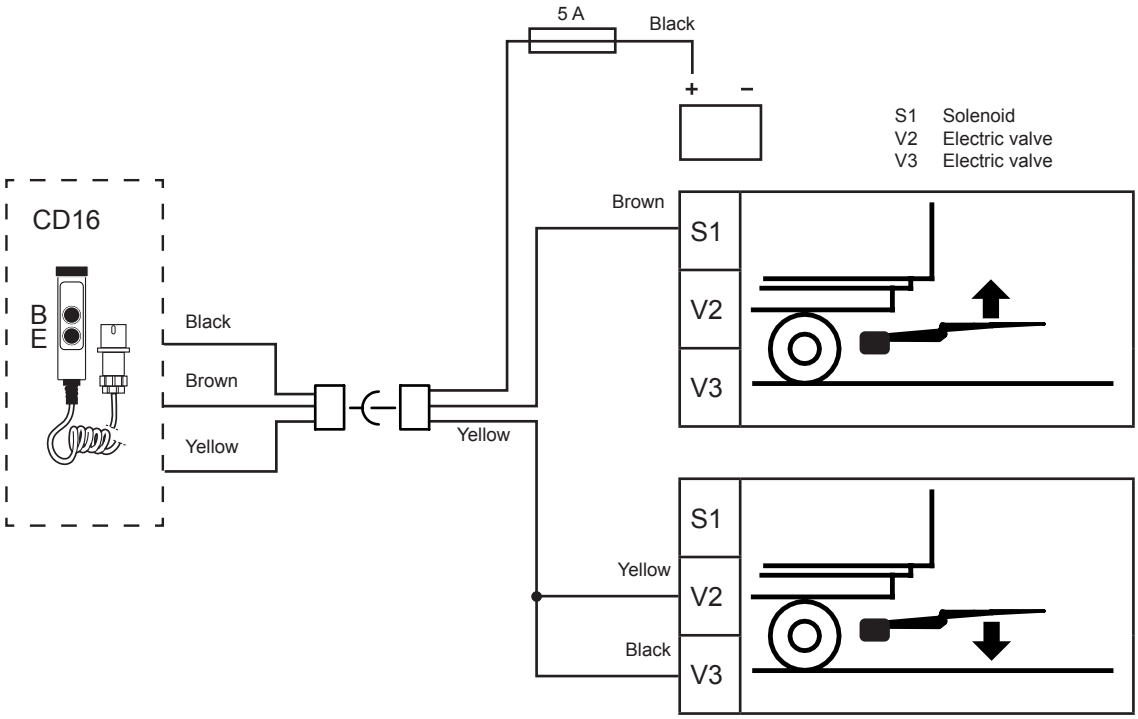


Image 44. Lift with one control device.

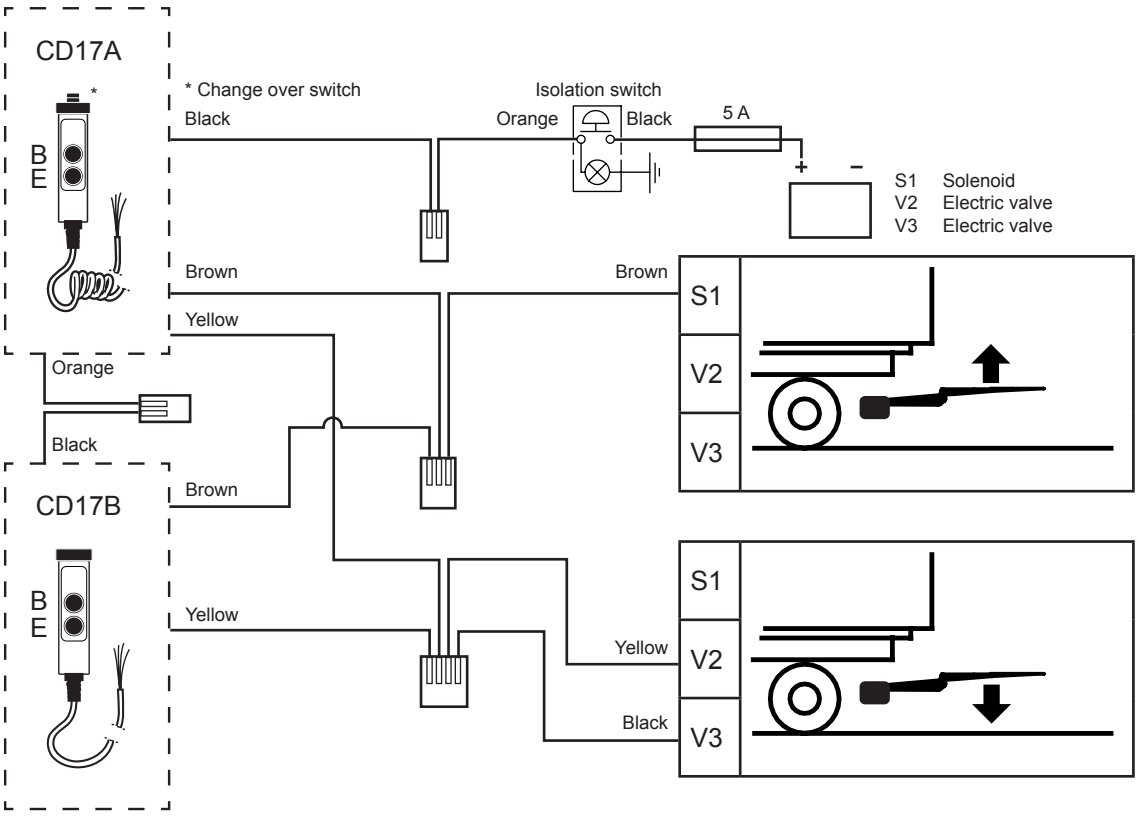


Image 45. Lift with two control devices.

9 Marking and decals

9.1 Summary

The illustrations below show the positions of the various decals.

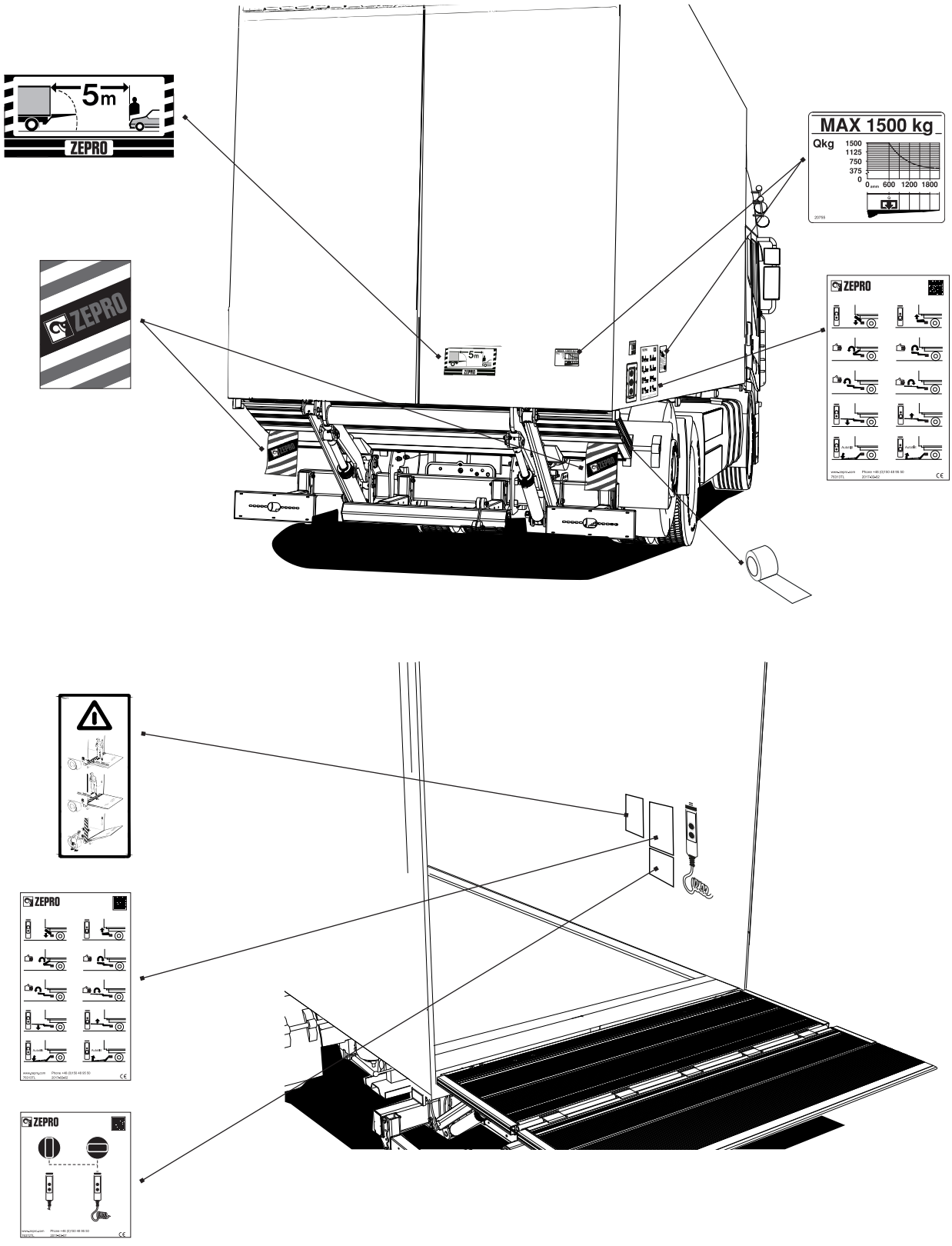


Image 46. Marking and decals

9.2 Load diagram

Load diagram decals are positioned close to control devices at a clearly visible, suitable location on the platform. The decal clearly shows the nominal load and a load diagram describing the maximum permitted load at various places on the platform.

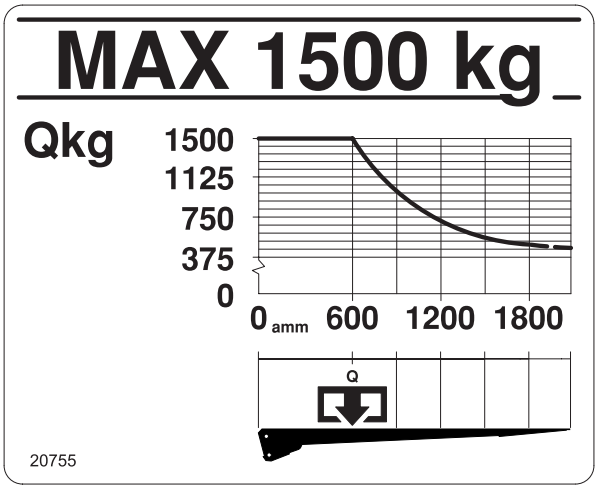


Image 47. Load diagram

9.3 Identification plate

The identification plate is fitted to the frame of the tail lift and 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)

Corresponding identification plate in decal design, preferably placed on the cabin door upright for reliable identification.

Image 48. Identification plate

9.4 Work area

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

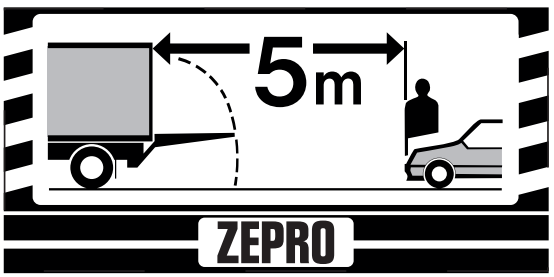


Image 49. Work area

9.5 Driver’s instructions

A driver’s instructions decal must be placed close to the fixed control device.

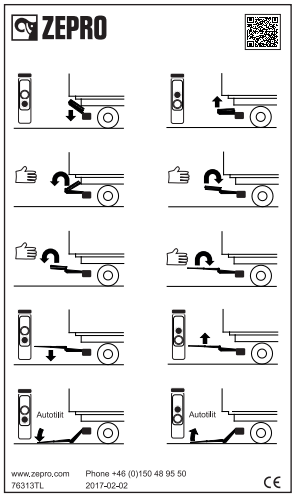


Image 50. Driver’s instructions

9.6 Selecting control device

The "Selecting control device" decal shows how you actively change the control device by using the knob on the coil control device. The decal must be attached to the inside of the vehicle body where the spiral control device is installed.

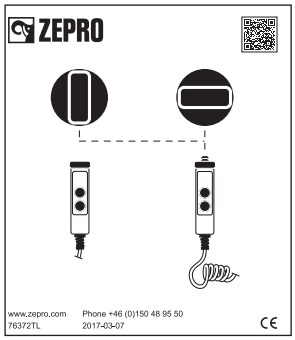


Image 51. Selecting control device

9.10 Danger area

A “danger area” decal warning 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 where the hand control device is installed.

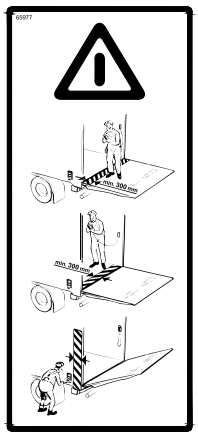


Image 52. Danger area

9.7 Warning tape

Warning tape is preferably attached along the platform edge strips to mark the platform edges in the lowered position. The location of the warning tape often coincides with the contour marking, in which case the warning tape can be omitted.

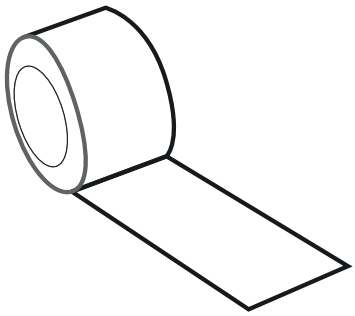


Image 53. Warning tape

9.8 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 folded up and when it is lowered to the ground. Swage the tracks together to secure the warning flags.

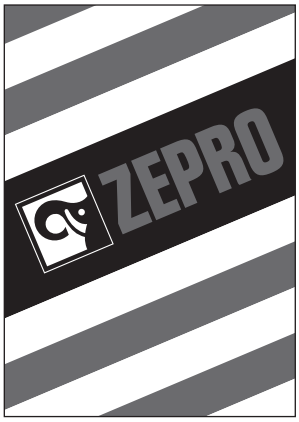


Image 54. Warning flags

9.9 CE marking

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

CE

Image 55. CE marking

10 Lubrication and fluid level check

The following lubrication points must be greased on installation. They must then be lubricated at least 4 times a year.

10.1 Lubrication

NOTE.

Use LE lubricant 4622 or the equivalent.

1. Left and right lifting arms, upper storage.
2. Left and right platform brackets.
3. Left and right tilt linkage, upper storage.
4. Left and right tilt cylinder, upper storage.
5. Left and right lifting arms, lower storage.
6. Left and right tilt linkage, lower storage.
7. Left and right lift cylinder, lower storage

10.2 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).

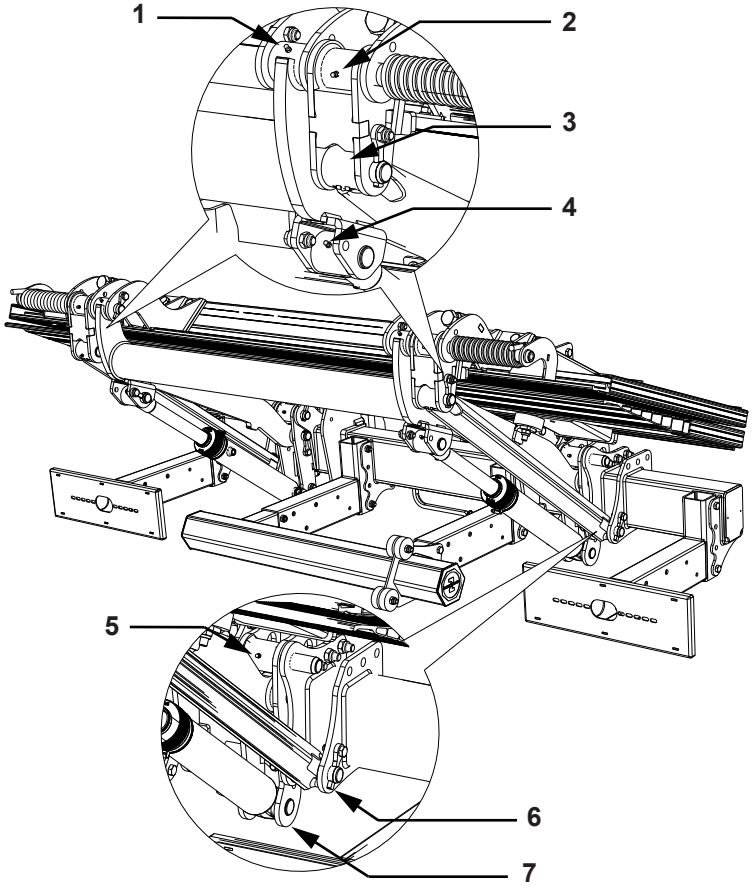


Image 56. Lubrication points

11 Testing and verification

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

11.1 Static load test

11.1.1 Deformation

Position the tail lift half way up to the vehicle floor level and with the platform in the horizontal position. Measure dimensions A-B-C-D for comparison as illustrated.
Place a test load on the platform according to the table for the respective tail lift model and lifting capacity.
Remove the test load from the platform.
Repeat the measurement of A-B-C-D and verify that there has been no deformation of the lift or its fixing.

11.1.2 Drift

Place a test load on the platform according to the table. The tail lift must be at the same level and angle as the vehicle floor. Leave the test load for 15 minutes.
Verify that the platform drift is no more than 15 mm on the vertical (points A and D) and 2º 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 600 mm

Capacity	Load 500 kg	Load 1000 kg
	Distance out in platform (L)	
1000 kg	1450 mm	750 mm
1500 kg	2250 mm	1125 mm

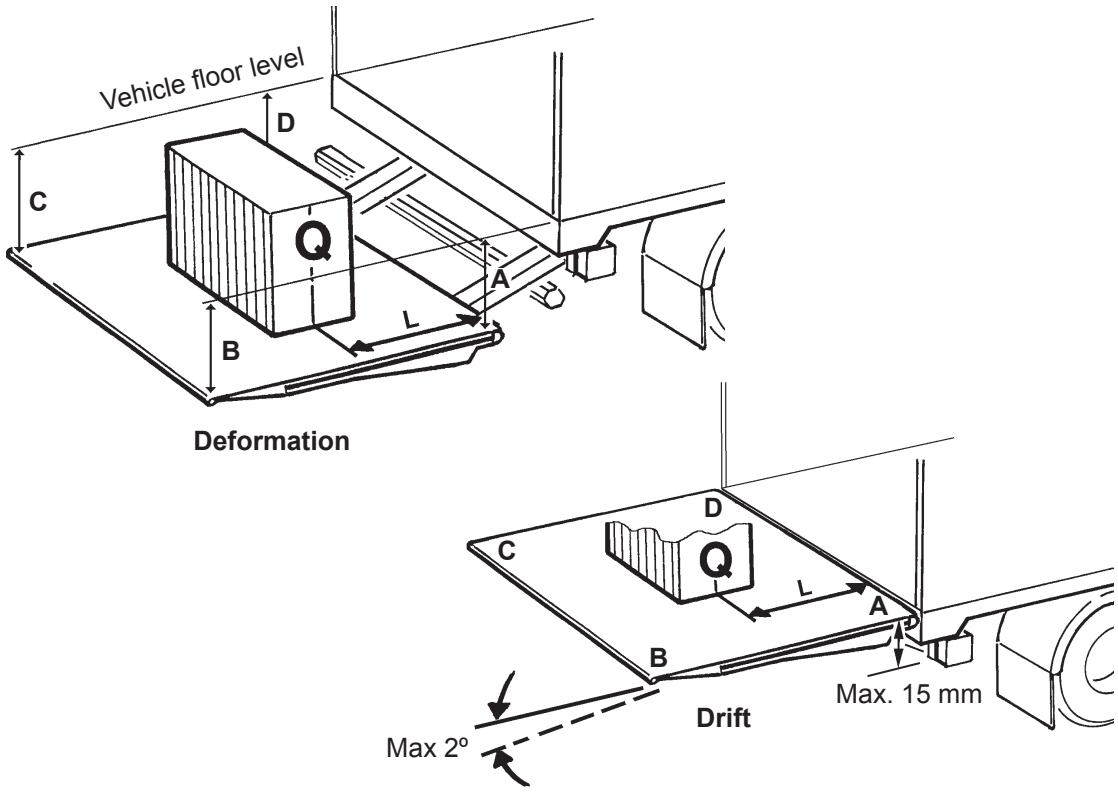


Image 57. Testing and verification

11.2 Dynamic load test.

11.2.1 Test with max. load

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

11.2.2 Test with overload

Place a test load on the platform according to the table for the respective tail lift model and lifting capacity.
The test load should be 1.25 x the lift model's max. load. Check that the tail lift cannot lift the load when the up function is switched on (it may however by 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 600 mm

Capacity	Load 500 kg	Load 1000 kg
	Distance out in platform (L)	
1000 kg	1200 mm	600 mm
1500 kg	1800 mm	900 mm

11.3 Test of safety functions

The tail lift functions must be tested.
Check:

- That the tail lift will not operate if the cabin switch is in the off position (where available).
- That the lift cannot be operated when the main switch fuse at the battery is broken (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 if the electrical connector from the electric hose breakage valves on the lift cylinders is removed.
- That there is a "max. load" marking on the platform and it is correctly positioned according to the loading diagram for the tail lift model concerned.
- That warning flags and reflectors are fitted and fulfil their function correctly.
- That all safety and operating decals are installed in their respective position.
- That the mechanical lock of the platform functions correctly (where applicable).
- That the instructions for using the tail lift have been left in the driver's cabin.
- That the CE declaration of conformity has been completed.

12 Disassembly

If the tail lift has to be removed from the vehicle, for example to transfer it to another vehicle, for storage or for modification, please follow these instructions.

1. Fold up the platform and operate the lift into transport mode.
2. Disconnect +24V from the hydraulic unit.
3. Disconnect all control devices from the hydraulic unit.
4. Support the support frame from beneath, for example with a car jack.
5. Remove the support frame from the vehicle chassis by loosening the bolts and carefully lowering the support frame to the ground with a car jack.

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.

Complete Lift chassis	
ZR 10/15-135	314 kg
Aluminium platforms	
Aluminium platform 1055x2300 mm	74 kg
Aluminium platform 1315x2300 mm	88 kg
Aluminium platform 1440x2300 mm	92 kg

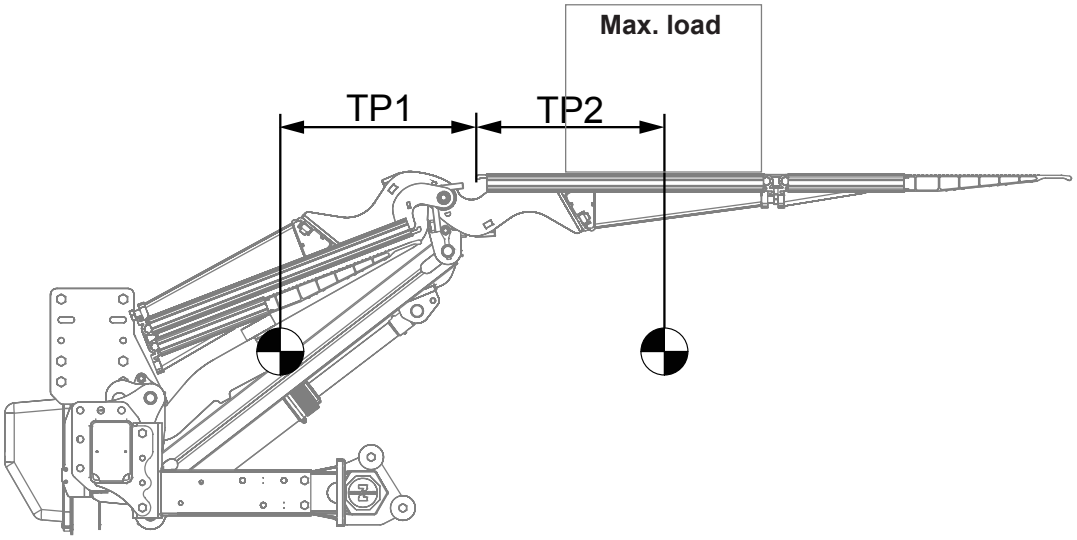
Lift components (included in complete lift chassis)	
Support frame ZR 10/15	60 kg
Lift arm ZR 10/15	60 kg
3-part underrun protection complete ZR 10/15	53 kg
Complete truck chassis bracket ZR 10/15	20 kg
Complete trailer chassis bracket ZR 10/15	44 kg
Lift cylinder ZR 10/15	11 kg

13.2 Point of gravity

ZR10/15-135 PF 2200x1440			
	C=450 mm.	C=550 mm.	C=675 mm.
TP1	535 mm.	551 mm.	487 mm.
TP2 1000kg	354 mm.	363 mm.	379 mm.
TP2 1500kg	419 mm.	426 mm.	438 mm.

ZR10/15-135 PF 2200x1315			
	C=450 mm.	C=550 mm.	C=675 mm.
TP1	526 mm.	544 mm.	489 mm.
TP2 1000kg	350 mm.	359 mm.	375 mm.
TP2 1500kg	416 mm.	423 mm.	435 mm.

ZR10/15-135 2200xPF 1055			
	C=450 mm.	C=550 mm.	C=675 mm.
TP1	568 mm.	534 mm.	473 mm.
TP2 1000kg	342 mm.	351 mm.	366 mm.
TP2 1500kg	411 mm.	418 mm.	429 mm.



13.3 Loading diagram

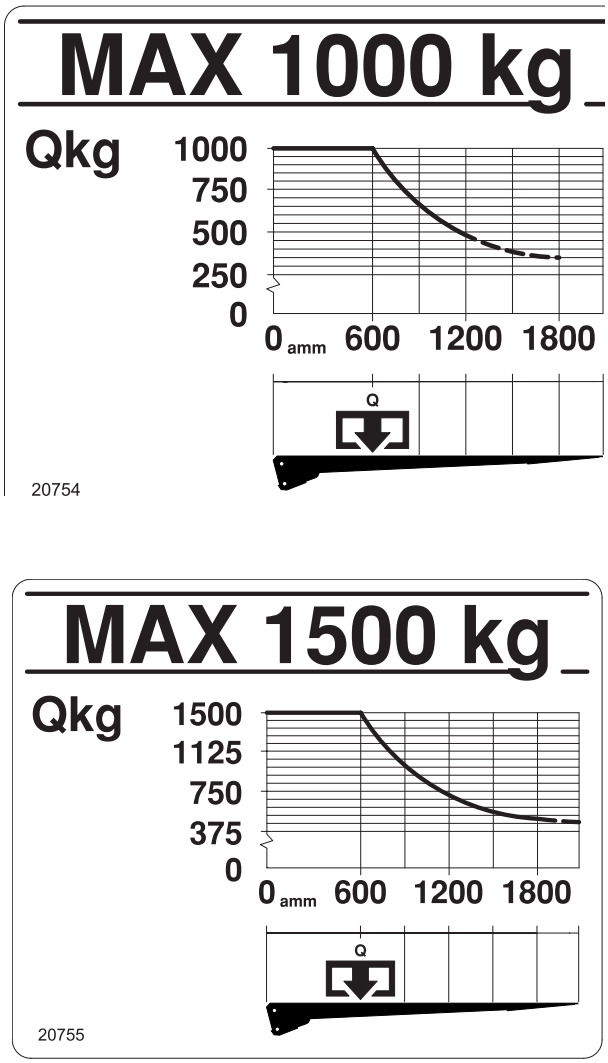


Image 58. Loading diagram

13.4 Maximum power consumption - Minimum recommended conductor cross sectional area

ZR 10 (115 bar)

Hydraulic unit 7050	24 volt
Pump - Motor unit	110 A
Magnet (hydraulic unit)	2.10 A
Magnet (electric safety valve)	0.75 A
Solenoid	0.9 A
Minimum recommended conductor cross sectional area (copper cables, plus and minus cables)	
Control cable	1.5 mm^2
Supply cable, L < 8 m	35 mm^2
Supply cable, L = 8 - 15 m	35 mm^2
Supply cable, L > 15 m	50 mm^2
Battery	
Min. capacity, I_{min} (available for lift)	170 Ah
Min. voltage during operation, U_{min} (at lift)	18 Volt

NOTE.

Ensure that the lift has access to the minimum recommended power capacity (I_{min}). Some vehicles have restrictions regarding the amount of power the lift can access from the existing battery.

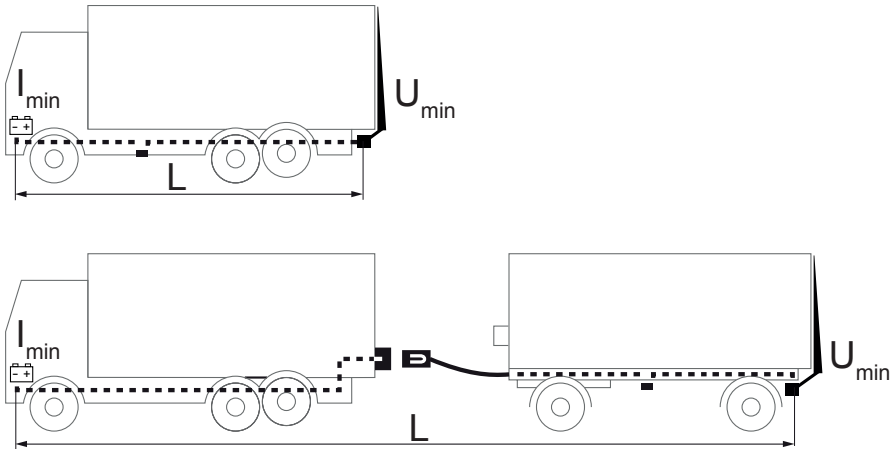


Image 59. Maximum power consumption - Minimum recommended conductor cross sectional area

ZR 15 (155 bar)

Hydraulic unit 7050	24 volt
Pump - Motor unit	125 A
Magnet (hydraulic unit)	2.10 A
Magnet (electric safety valve)	0.75 A
Solenoid	0.9 A
Minimum recommended conductor cross sectional area (copper cables, plus and minus cables)	
Control cable	1.5 mm^2
Supply cable, L < 8 m	35 mm^2
Supply cable, L = 8 - 15 m	35 mm^2
Supply cable, L > 15 m	50 mm^2
Battery	
Min. capacity, I_{min} (available for lift)	170 Ah
Min. voltage during operation, U_{min} (at lift)	18 Volt

NOTE.

Ensure that the lift has access to the minimum recommended power capacity (I_{min}). Some vehicles have restrictions regarding the amount of power the lift can access from the existing battery.

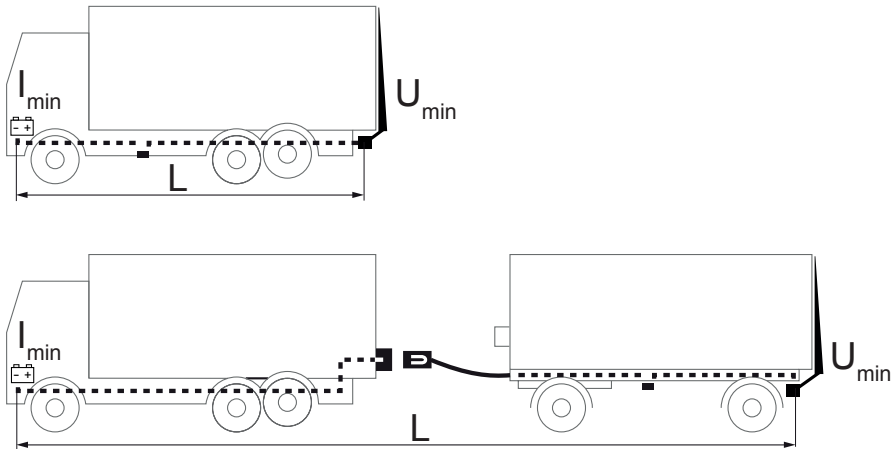


Image 60. Maximum power consumption - Minimum recommended conductor cross sectional area

13.5 Battery maintenance

When storing for longer than 1 week, you are 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's charge level becoming too low depends on the condition of the battery, the charge level before storage and how much power the vehicle's other components take from the battery. After a period of storage, the battery must always be charged fully before operating the lift.

When installing the lift and when carrying out service and repair work, when the lift is operated repeatedly without the vehicle being started and used, the battery charger must be used between operations to maintain the battery's charge level.

NOTE.

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

13.6 Tightening torque

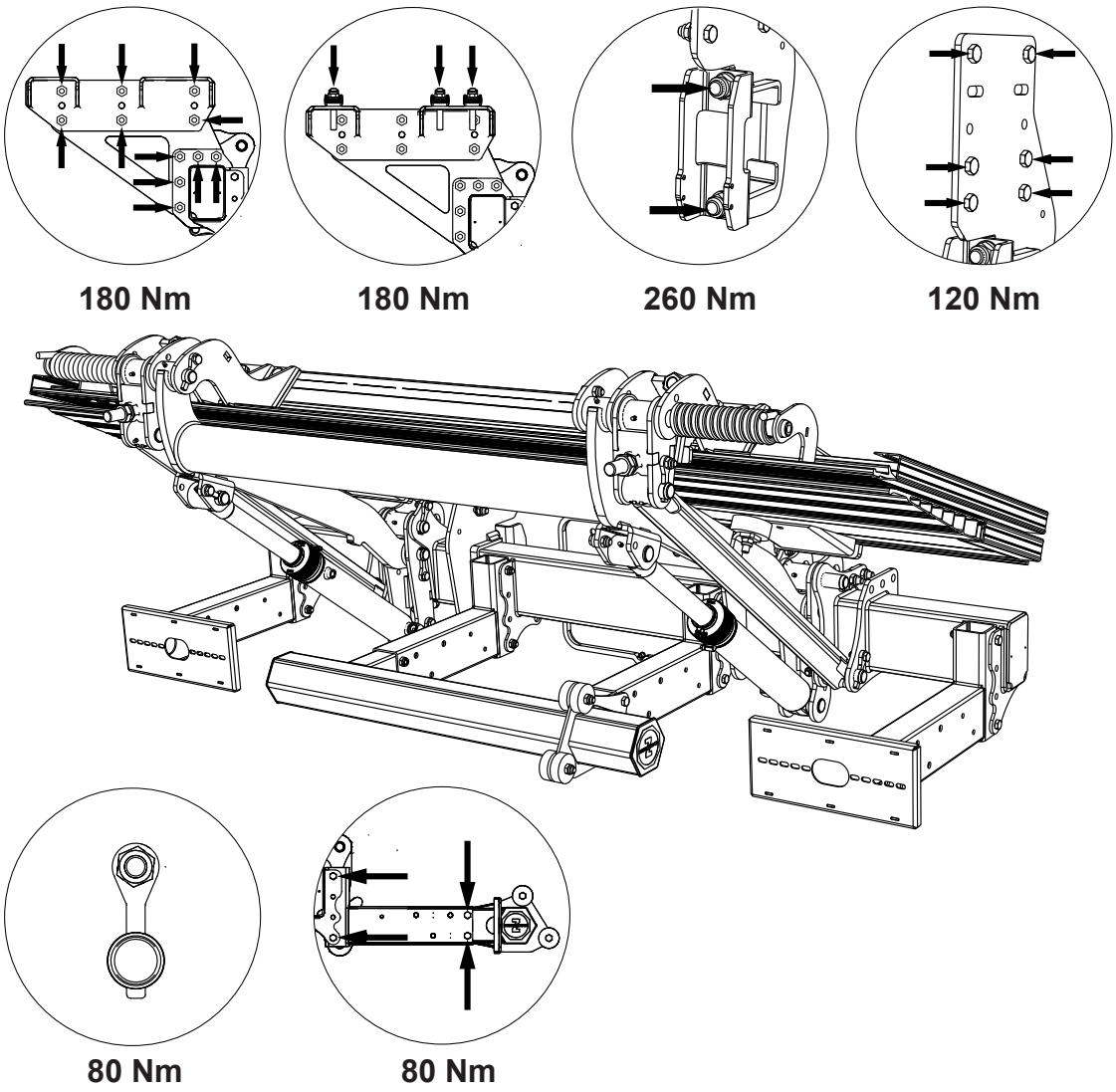


Image 61. Tightening torque