

Installation Instruction

Tail Lift SZFT / SZFTS 200-160

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76420TL
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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 Page navigation

Each page in the installation instructions has a page header and a page footer containing the following information:

- Chapter
- Product
- Page number
- Company name

Page header:

The page header, at the top of the page, shows which chapter the visited page belongs to, and what product the installation instructions apply to.

Chapter

|

Introduction

Product

|

SZFT/SZFTS 200-160

Page footer:

The page footer, at the bottom of the page, shows the current page number and the company name.

Page no.

|

5

Company

|

www.zepro.com

1.3 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.



1.4 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 fluid 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.

1.5 Identification

E.g. SZFT/
SZFTS 200 - 160

Identification list

SZFT/SZFTS = Standard model

Max lift capacity x 10 (kg)

Max lifting height - 160 = 1600 mm

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.

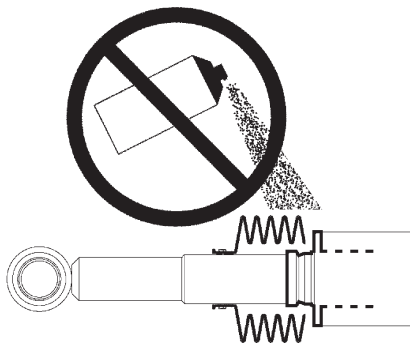


Image 1. Piston rods, cylinder covers and boots must not be painted/coated

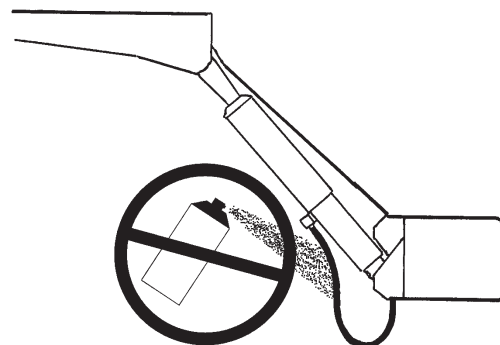


Image 2. Hydraulic hoses must not be painted/coated

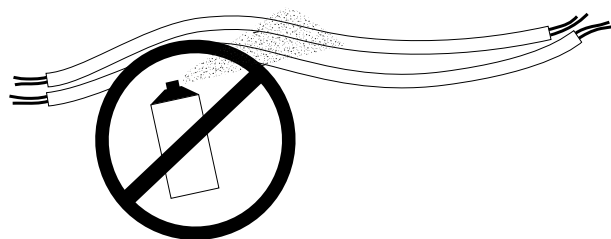


Image 3. Cables must not be painted/coated

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.

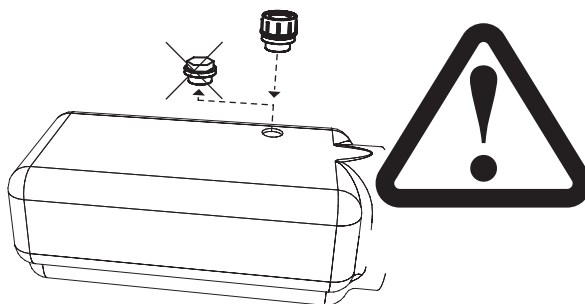


Image 4. Replace the transport plug with the normal tank cap

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.

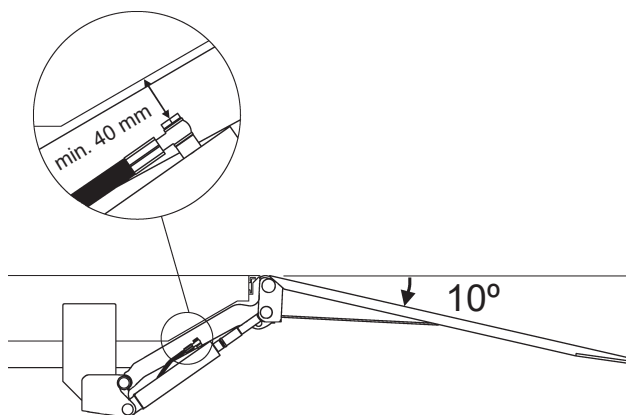


Image 5. Clearance to the closest part of the cylinder must be at least 40 mm

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.

NOTE!

All specified torque values apply for use with a screw or impact wrench with torque control. Torque distribution max $\pm 5\%$.

3 Installation workflow

3.1 Installing the support frame

- Calculating the installed dimensions
- Attaching the mounting jig to the rear beam
- Aligning/mounting the support frame
- Detaching the mounting jig

3.2 Electrical connections

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

3.3 Installing the platform

- Installing the platform

3.4 Installing cylinders

- Adjusting tilt cylinders
- Test running

3.5 Attaching decals

4 Statutory dimensions for underrun protection

4.1 SZFT/SZFTS 200-160, Truck

4.1.1 Vehicle chassis requirements

In order to comply with the applicable underrun protection standards, there are requirements for the vehicle chassis on which the rear tail lift is mounted.

The moment of inertia in a cross-section on the current frame beam (excluding any support frame) shall not be less than 937 cm^4 . Thus the frame beam cross-section must measure at least $220 \times 70 \times 4 \text{ mm}$, which corresponds to a minimum moment of inertia of 937 cm^4 around the x-axis. See Image 19.

If in doubt, contact ZEPRO for support.

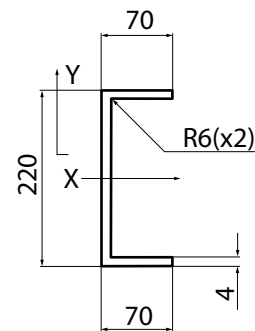


Image 6. Cross section of vehicle chassis frame beam (all dimensions expressed in millimetres)

⚠ WARNING!

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

4.1.2 Statutory dimensions

Make sure the installation location allows the tail lift to meet the statutory dimensions for underrun protection when in transport mode

Distance between the platform and the ground when the vehicle is unladen:

Max 450 mm for vehicles with air suspension.

Max 500 mm for vehicles with conventional suspension.

If the departure angle with the above setting is less than 8° , the distance between the platform and the ground on an unladen vehicle must be increased until the angle reaches 8° , but by not more than 550 mm.

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

See Picture 8.

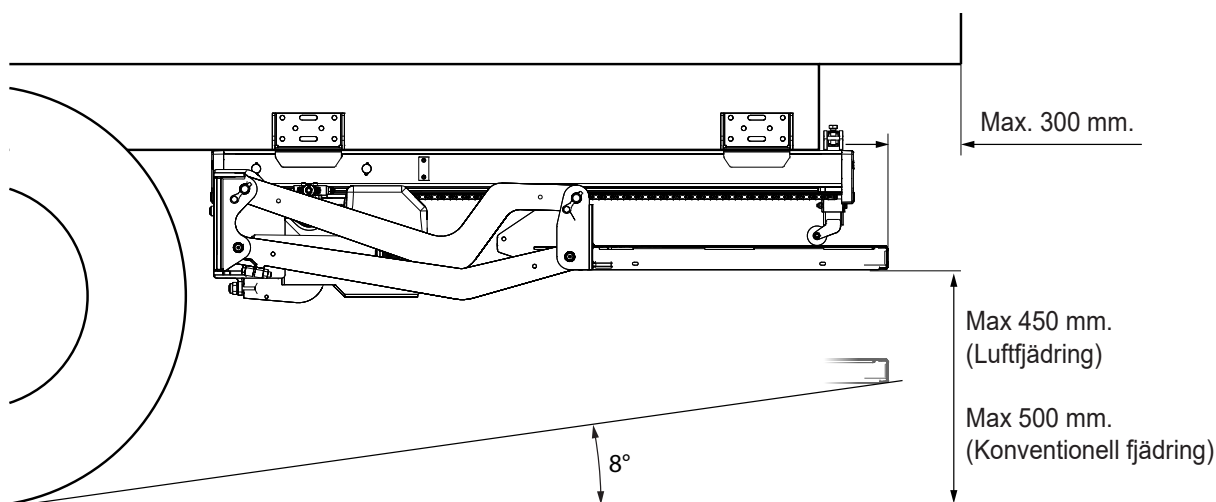


Image 7. Statutory dimensions for underrun protection

4.2 SZFT/SZFTS 200-160, Trailer

4.2.1 Vehicle chassis requirements

In order to comply with the applicable underrun protection standards, there are requirements for the vehicle chassis on which the rear tail lift is mounted.

The moment of inertia in a cross-section on the current frame beam (excluding any support frame) shall not be less than 1003 cm^4 . Thus the frame beam cross-section must measure at least as in image 8, which corresponds to a minimum moment of inertia of 1003 cm^4 around the x-axis. See Image 19.

If in doubt, contact ZEPRO for support.

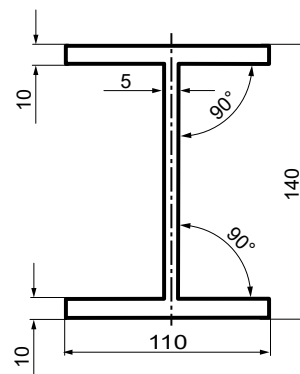


Image 8. Cross section of vehicle chassis frame beam (all dimensions expressed in millimetres)

⚠ WARNING!

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

4.2.2 Statutory dimensions

Make sure the installation location allows the tail lift to meet the statutory dimensions for underrun protection when in transport mode

Distance between the platform and the ground when the vehicle is unladen:

Max 450 mm for vehicles with air suspension.

Max 500 mm for vehicles with conventional suspension.

If the departure angle with the above setting is less than 8° , the distance between the platform and the ground on an unladen vehicle must be increased until the angle reaches 8° , but by not more than 550 mm.

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

See Picture 8.

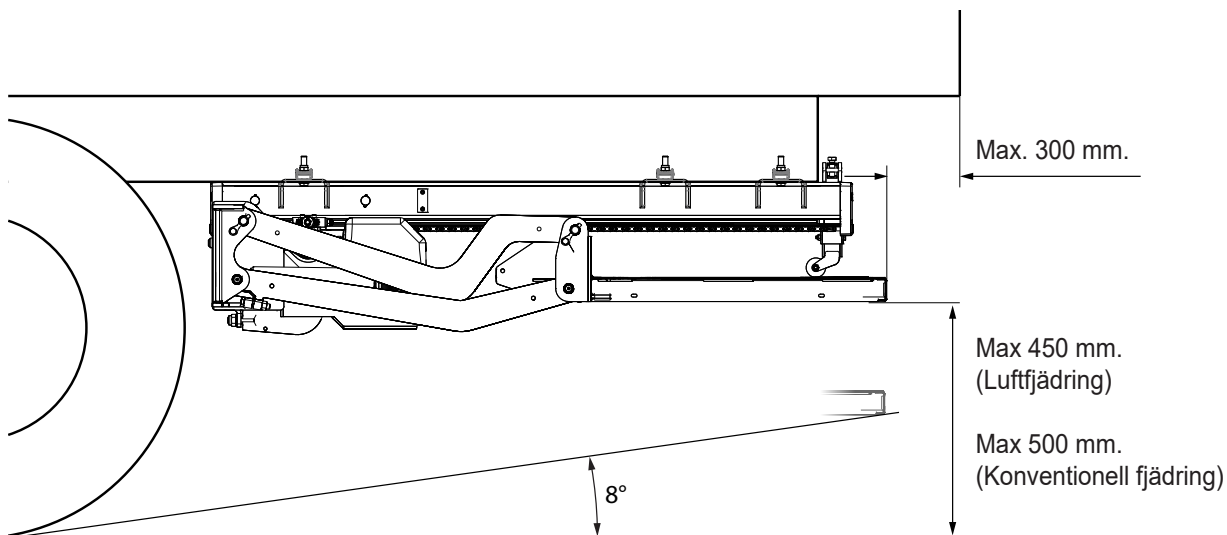


Image 9. Statutory dimensions for underrun protection

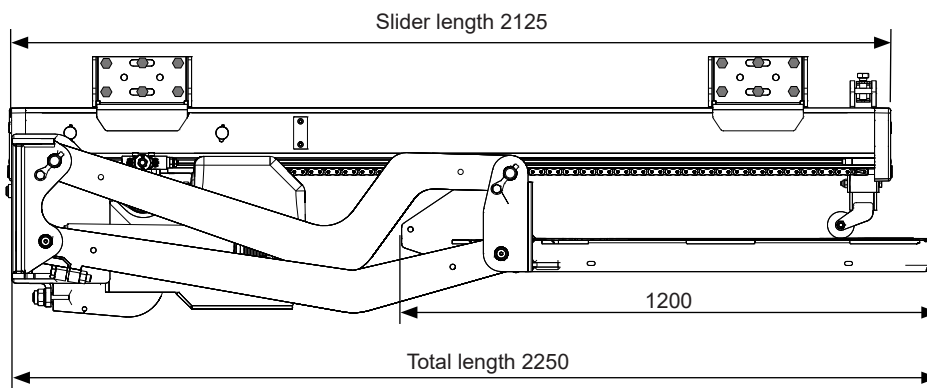
5 Calculating the installed dimensions

For easier installation it is useful to calculate and specify the necessary dimensions in advance. You should try to install the lift as high as possible.

The platform and lift arm combinations are optimised for minimal total length (O). Ensure that the installation position means that the lift in the folded position meets the legal dimensions for underrun protection.

- 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.

5.1 SZFTS, Truck



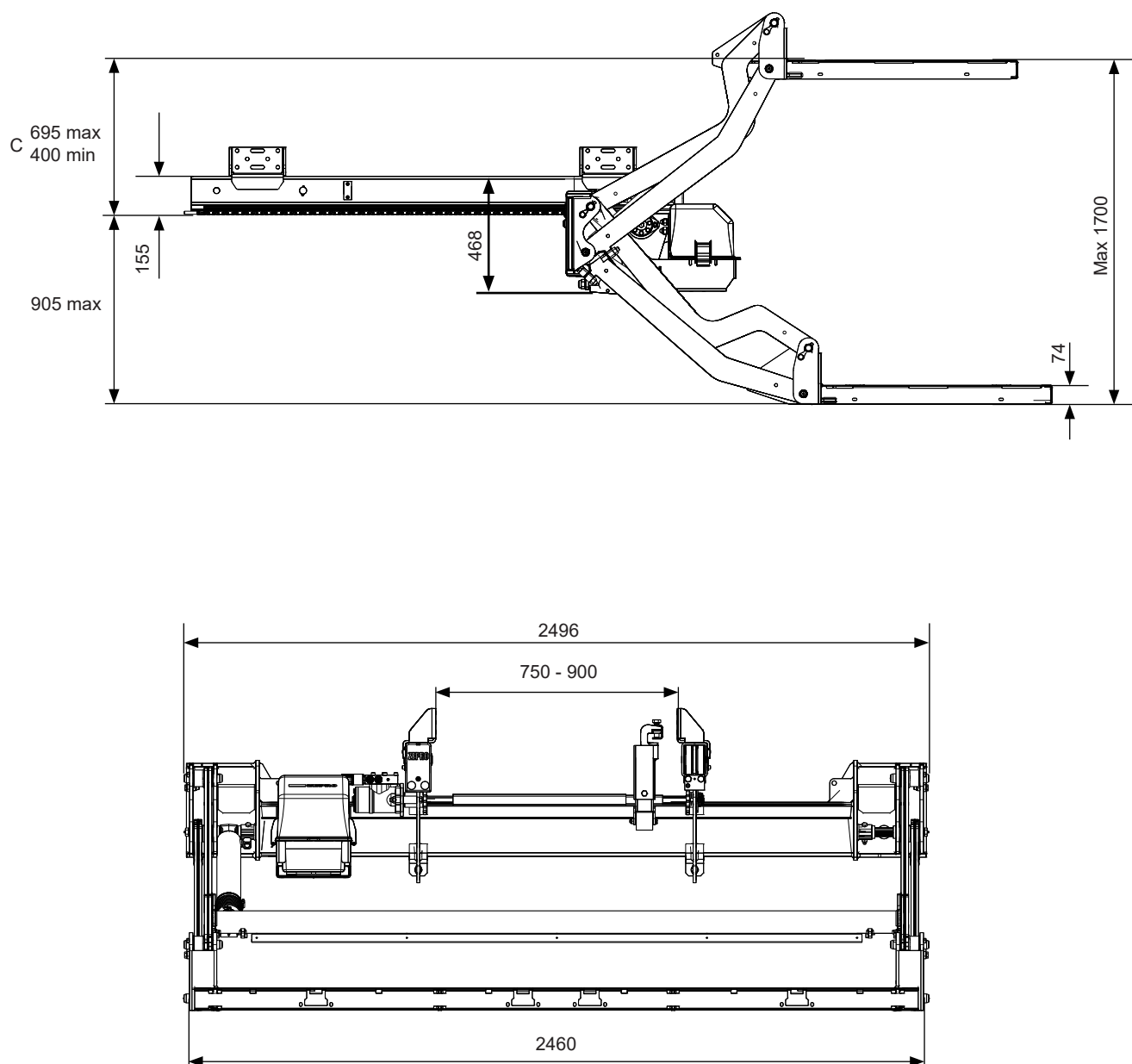


Image 10. Calculating the installed dimensions

5.2 SZFTS, Trailer

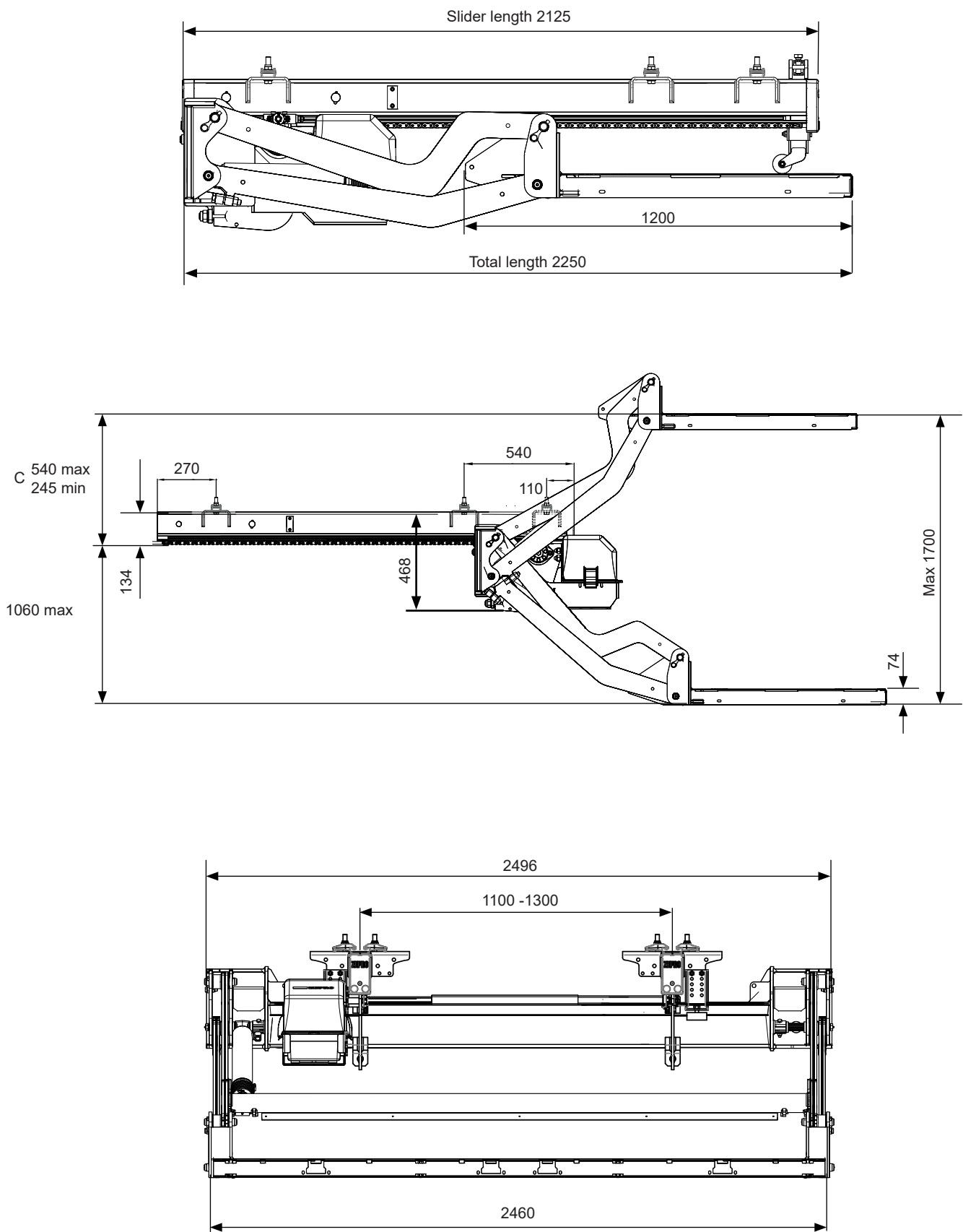
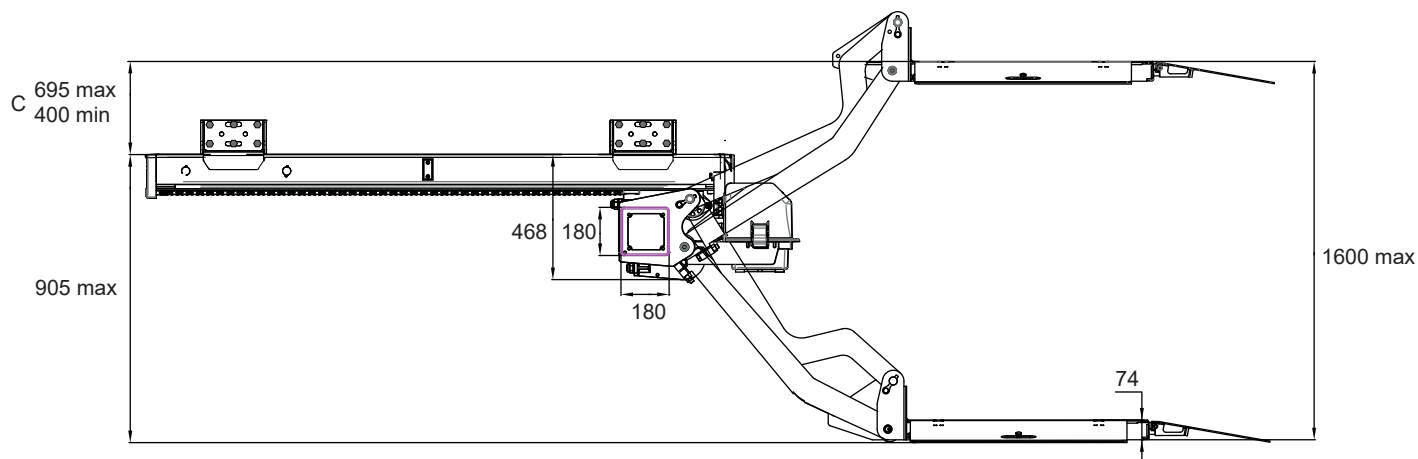
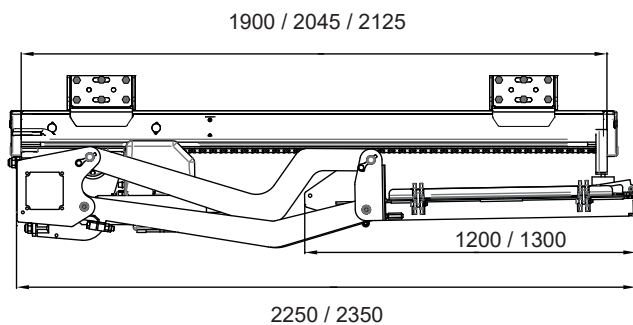
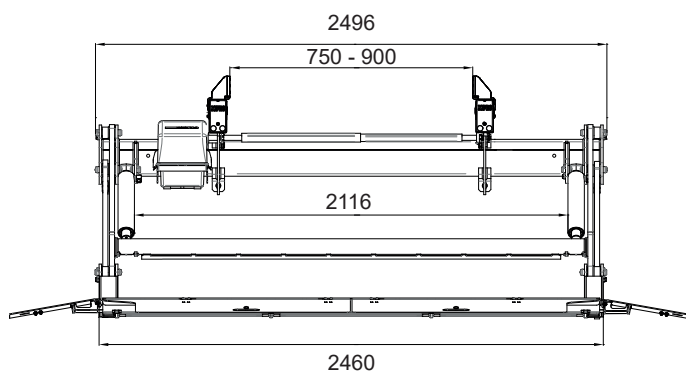


Image 11. Calculating the installed dimensions

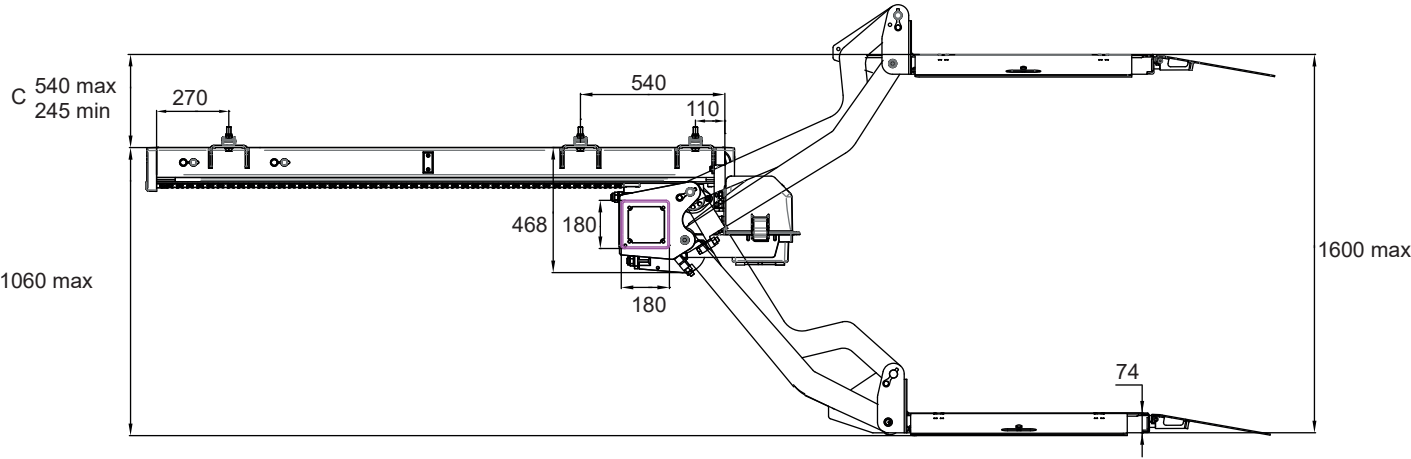
5.3 SZFT 200-160, Truck



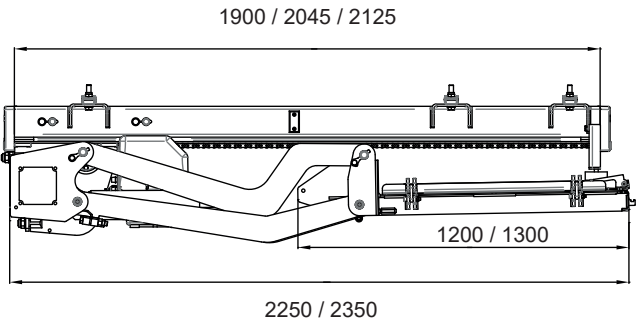
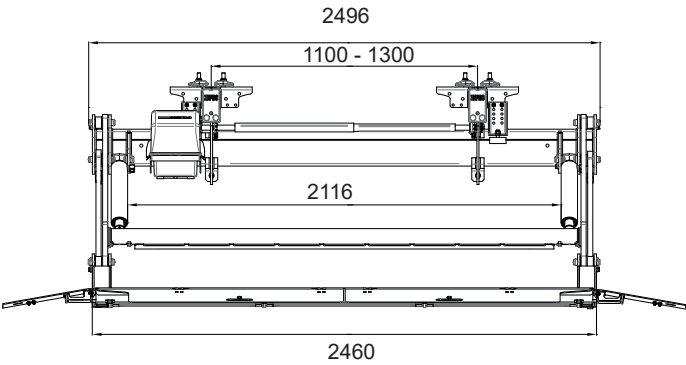
Side ramps		End ramps	
Length	Width	Length	Width
810	450	1134	450
910	450	1209	450



5.4 SZFT 200-160, Trailer



Side ramps		End ramps	
Length	Width	Length	Width
810	450	1134	450
910	450	1209	450



6 Installation

NOTE.

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

⚠ WARNING!

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

6.1 Adjusting the chassis brackets

The position of the chassis brackets on the support frame can be adjusted to the frame width of the vehicle.

1. Slacken off the nuts that hold the clamp to the rear of the chassis brackets, see Image 12.
2. Adjust the distance between the chassis brackets according to the chassis width and centre the frame so that the distance from the end of the frame to the brackets is the same on the left and the right. Measure to the slider function's engine mount, see Image 12.
3. Tighten the nuts crosswise again so that the chassis bracket's clamp is against the frame.
4. Tighten the nuts using a torque wrench. **Tightening torque: 260 Nm.**

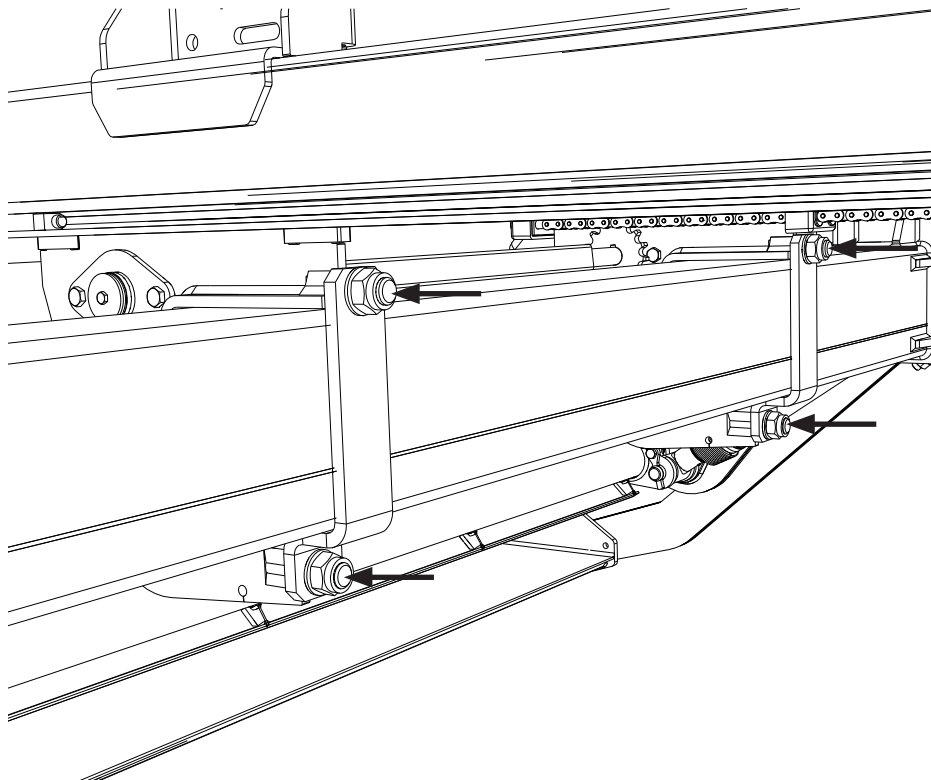


Image 12. Adjusting the chassis brackets

6.2 Installation support frame, truck

6.2.1 Spacer Kit, 77211TL

When mounting a support frame on a truck, it may be necessary to install spacer plates between the truck frame and the screw brackets, see Image 13, Spacer Kit.

1. Position the support frame under the vehicle chassis.
2. Temporarily connect the lift and control device to operate the lift's functions.
3. Adjust the support frame to the desired height under the frame. A workshop jack is useful to raise the frame and a forklift to raise the platform. The support frame should be positioned as high as possible without components and vehicle chassis colliding each other. The support frame must be installed parallel to the vehicle chassis, if necessary, adjust the arms' angle by carefully operating the lift. With the slider in the forward position, raise the platform so that it is level with the vehicle body floor and adjust the lift's position so that the platform lies against the vehicle body.

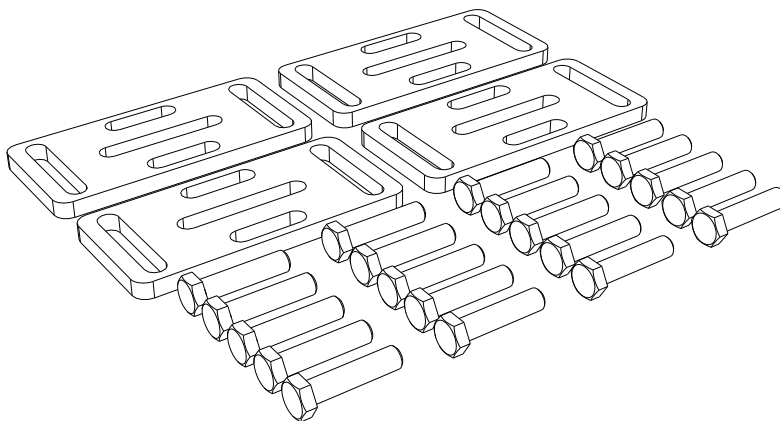


Image 13. Spacer Kit

4. To make installation easier, the lift can be installed first with a bolt in the brackets' slot-shaped holes (A). On the vehicle chassis, mark the middle of the brackets' slot-shaped holes for the drilling of holes, see Image 14.
5. Drill holes in the chassis, Ø14 mm.
6. Bolt the slider profile 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.
7. Check and perform fine adjustment regarding the position of the lift. Tighten the bolts with a torque wrench. **Tightening torque: 180 Nm.**
8. Drill holes in the vehicle chassis for mounting bolts, Ø14 mm. Drill in the four outer holes (B) of each bracket.
9. Use attached screws M14x45 (10.9) and install the associated washer and nut on the inside of the vehicle chassis. Install with four bolts in the outer holes on each bracket, if necessary the bolts first installed in the slot-shaped hole can now be moved to two of the outer holes, see Image 14. Tighten the bolts with 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 all bolts are tightened.

Do not place the vehicle body under load until all bolts are tightened.

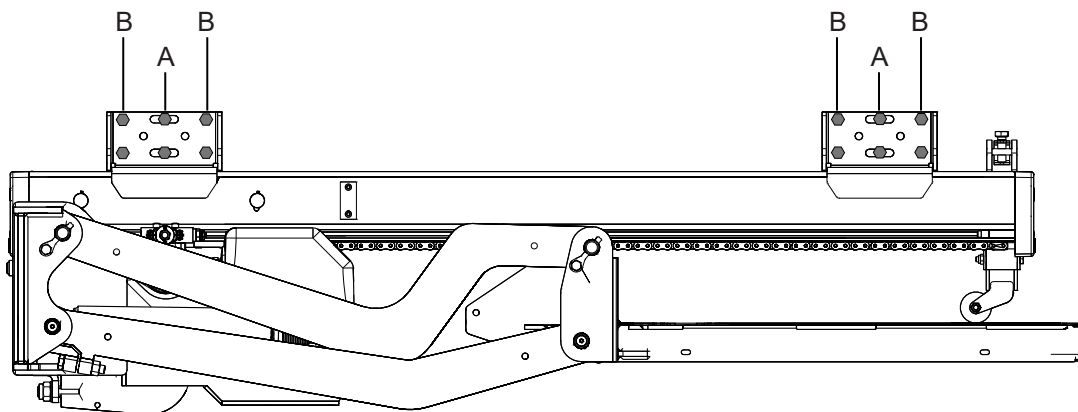
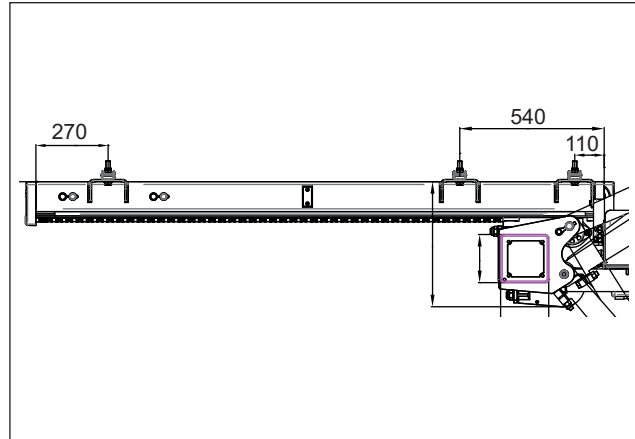
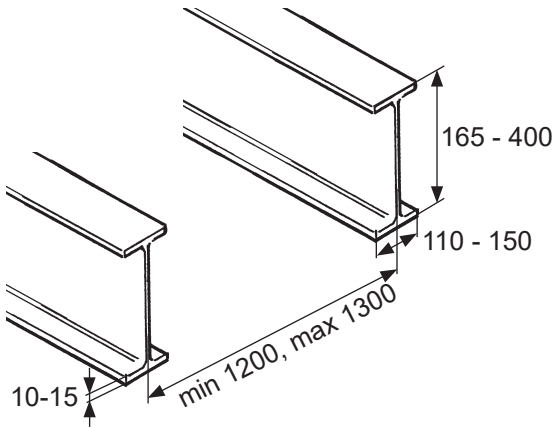


Image 14. Install the support frame to the vehicle chassis using the bolts in the brackets' outer holes

6.3 Installation support frame, trailer

Range of suitable installation widths



NOTE!

The transport protection bar between the slider profiles is only used for stability during transport.
Remove the transport protection bar before installing the tail lift on the trailer frame.

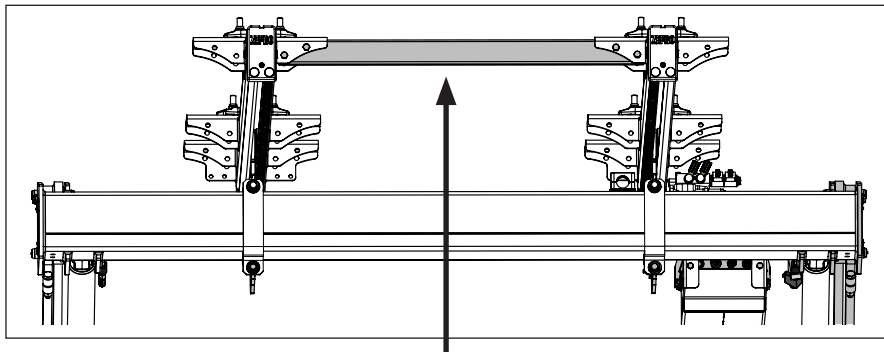
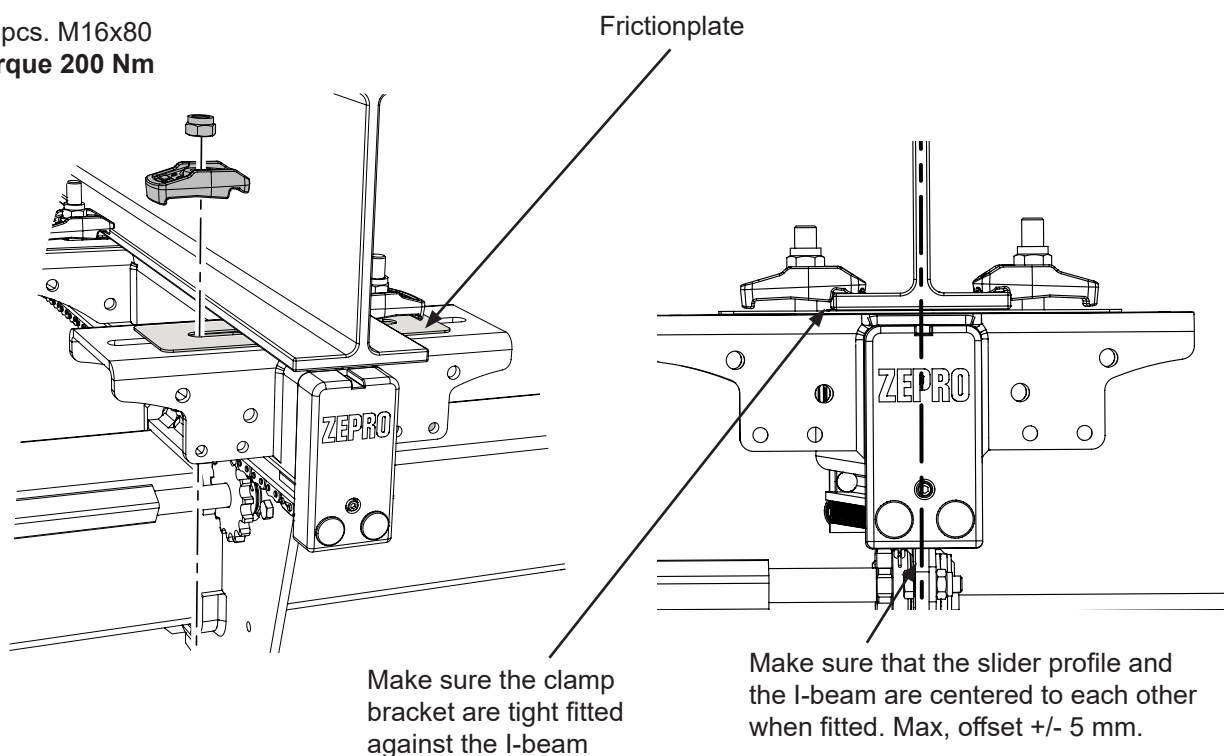


Image 15. Transport protection bar

1. Position the lift under the trailer frame.
2. Adjust the slide profiles separation so they are at the same width as the trailer chassis.
3. Make sure there is no dirt between slide bracket, friction plate and the I-beam during adjustment and that the slider profile and the I-beam are centered on each other when fitted.
4. Place clamping brackets (6 pieces for each profile) according to the picture below.
5. Screw the lift securely with the torques indicated.

12 pcs. M16x80
Torque 200 Nm

**NOTE!**

The friction plates are important parts of the under run protection and must always be mounted between the brackets and the vehicle frame.

6.4 Adjusting the platform

NOTE.

This setting must be made after completed installation. The lift must not be loaded when adjusting.

1. Place a test load on the platform e.g. maximum load (2000 kg) at Load Centre distance of 750mm.
2. Check that the platform does not bend more than 15 mm.
3. If adjustment is necessary, lift off the load and support the platform from underneath if necessary with a forklift for example.
4. Adjust the platform's tilting angle by slackening off the lock nuts on both tie rods, and then turning the adjustment collars equally on the left and right rods. After adjustment, tighten the lock nuts with a torque wrench. **Tightening torque 180 Nm.**
5. Place the test load back on the platform to check its angle. Repeat until an acceptable angle is achieved. The platform must be a level continuation on the vehicle body's floor.

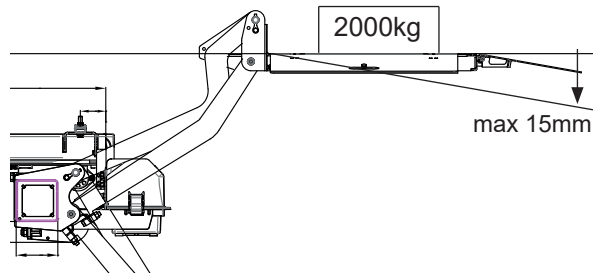


Image 16. Check that the platform does not bend more than 15 mm.

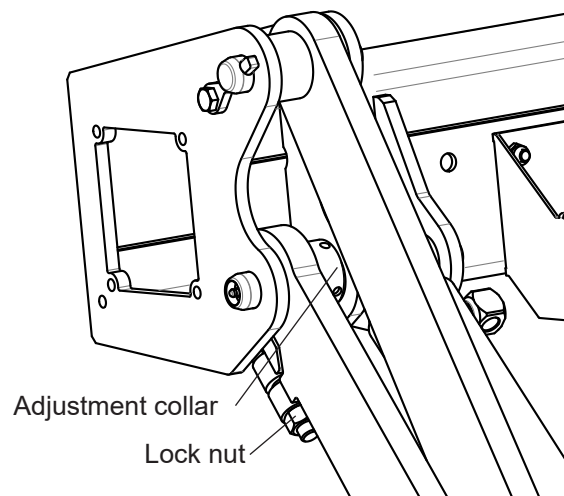


Image 17. Adjustment of the angle of the platform

6.5 Armstops

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

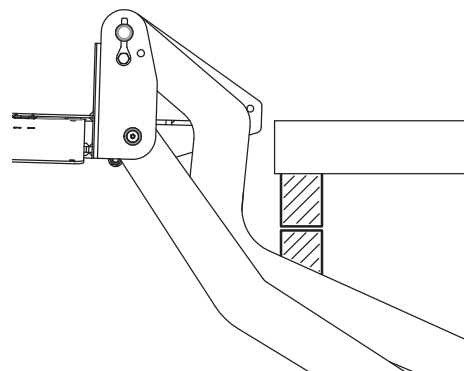


Image 18. Armstops

6.6 Platform stop

6.6.1 Platform stop with roller (standard)

Platform stop with roller is supplied and mounted with integrated clamping bracket on the vehicle chassis. The platform stop is adjustable in height, see Image 19.

When mounting, the platform stops with roller must be placed so that they do not rest against the area around the handles on the platform flaps, see Image 20.

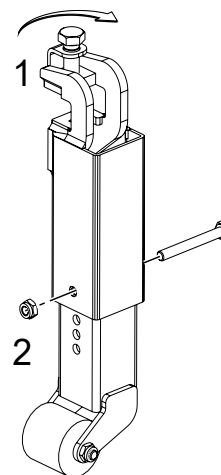


Image 19. Adjustable platform stop with roller (standard)

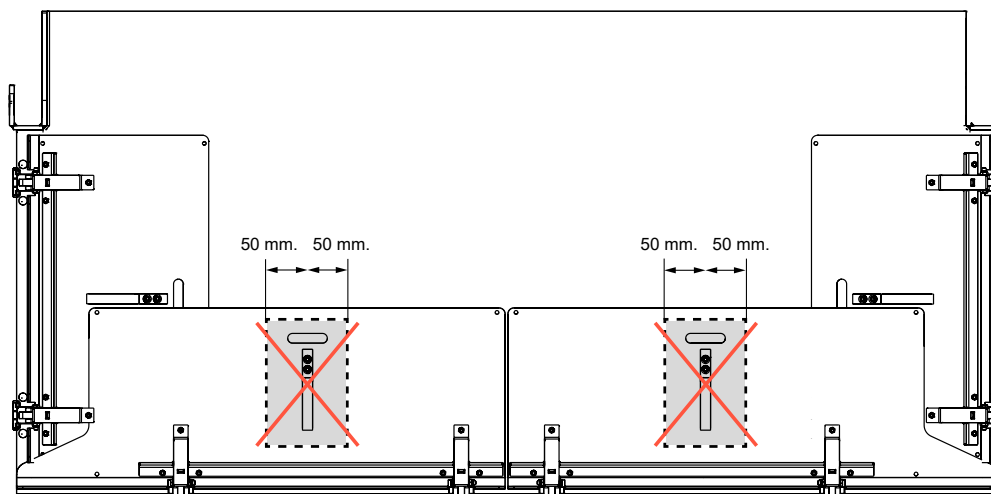


Image 20. Platform stops with roller should be placed so that they support the platform, outside the marked areas

6.6.2 Platform stop with rubber cushion (optional)

Platform stop with rubber cushion has a fixed hole pattern and is mounted on the tail lifts sliding profiles, see Image 21.

NOTE!

The platform stops must always be mounted in pairs, one on each side.

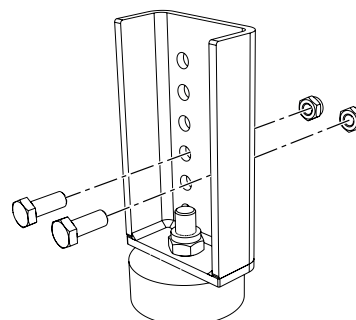


Image 21. Platform stop with rubber cushion (optional)

6.7 Control devices

If the vehicle is equipped with two-handed grip this means that the operator must use both hands to be able to operate the loading platform, while this protects the operator from pinch point injuries.

1. Fit the control devices in the desired locations. 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.
2. The distance between the vehicle's rear edge and the centre of the controllers must be 300 - 600 mm. See Image 22.

NOTE.

All cable inlets must be pointing downwards.

3. Connecting the control device's, see "7.1 Connecting Control Devices" on page 33.

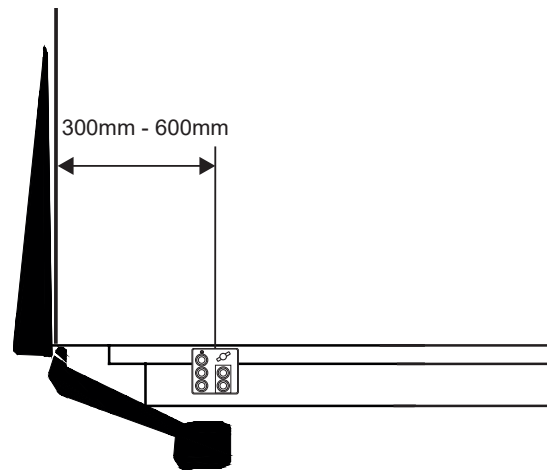


Image 22. Installing control device with two-handed grip

⚠ 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.

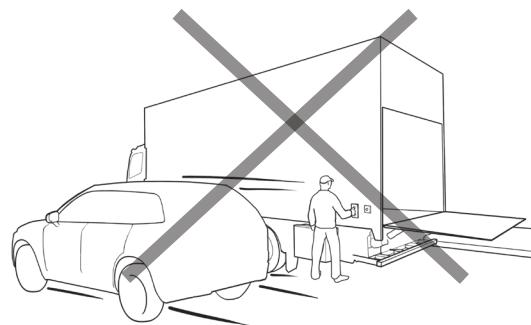
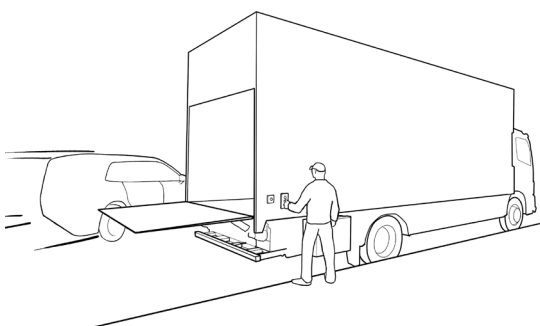


Image 23. Installing control device

6.8 Control power cable

NOTE.

See also the trailer manufacturer's electrical instructions.

1. 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 to the on-board electrical system via a 10 A (24 V), 15 A (12 V) fuse according to the customer's wishes. See electrical and hydraulic diagrams.

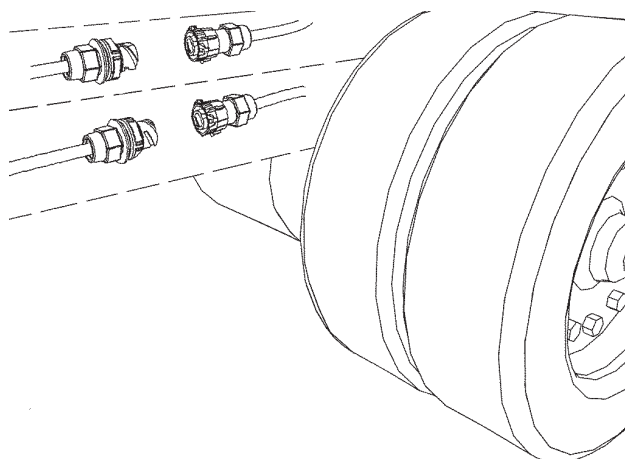


Image 24. Quick connectors must be well protected

6.9 Main power cable

6.9.1 Cable routing

1. Route the main power cable from the lift to the battery. Route the cable through a plastic casing and ensure it is not clamped to the brake line or the vehicle's existing electrical system.

NOTE!

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

The cable must be protected by rubber grommets when it passes through beams or walls, see Image 25.

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 and cable fires.

Do not bend the cable with too small a radius as this can cause damage to the cable.

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

NOTE.

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

2. Check that the hydraulic unit is effectively earthed. Certain commercial vehicle manufacturers provide special earth connection points.
3. Connect the main power cable to the hydraulic unit, see "9 Electrical and hydraulic drawings" on page 35

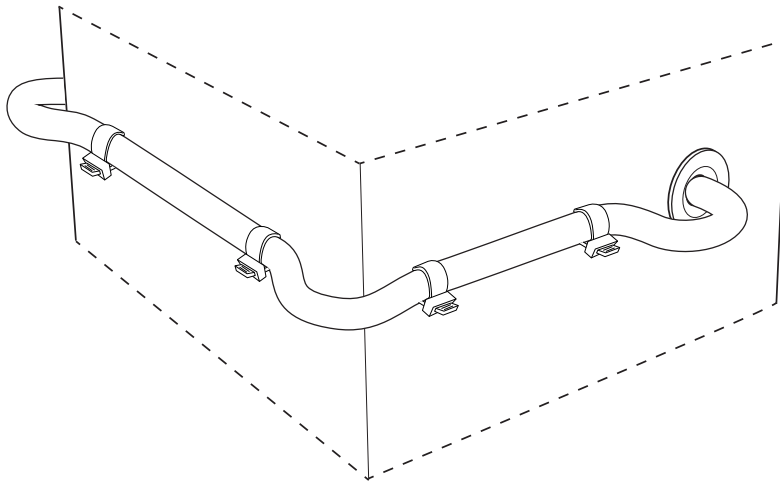


Image 25. Protect the cable against sharp edges and use cable grommets

6.9.2 Installation of main fuse on vehicles with M8 connection point (+)

When installing the main power cable, the fuse, 150A (24V) or 250 (12V), must be installed on the vehicle's connection point (+). This is to protect the electrical system from damage and risk of fire in the event of a short circuit.

1. Place the fuse on the connection point and connect the main power cable, see Image 26.
The following image showing the connection point is an example and may vary from vehicle to vehicle.
2. Secure the fuse and main power cable with the knob.

WARNING!

The knob must lie against and centre the cable clip so that it does not come into contact with the bolt. Incorrect installation can cause the fuse to malfunction. Risk of fire in the event of a short circuit, see Image 27 and Image 28.

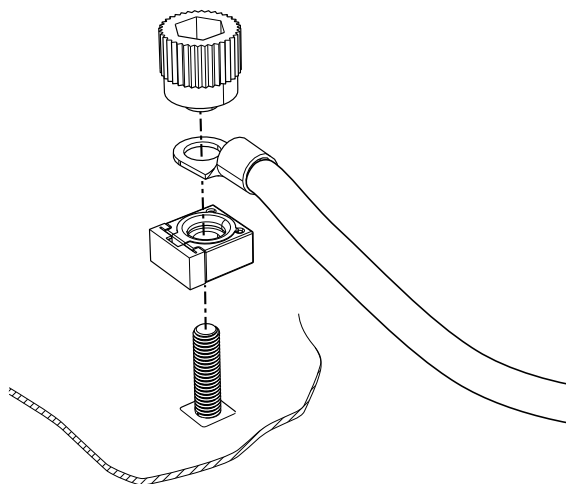


Image 26. Install fuse and connect main current cable

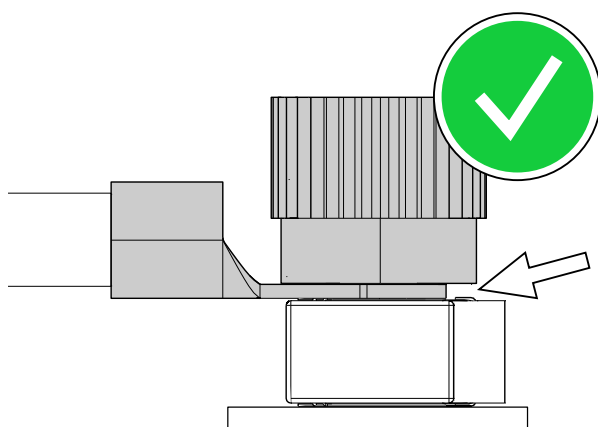


Image 27. Correct installation

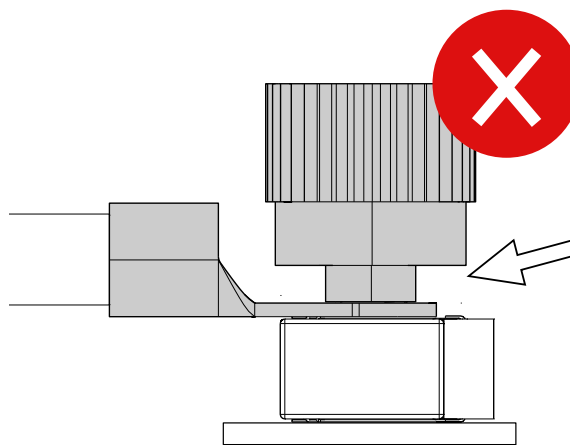


Image 28. Incorrect installation

6.9.3 Installation of main fuse on vehicles without connection point

On vehicles without connection point, the following fuse box with fuse, 150A (24V) or 250A (12V) must be installed. The fuse box must be positioned well-protected as close to the battery as possible.

1. Screw the fuse box into position with the following bolts (2 x M4x25) + washers and nuts, see Image 29.
2. Connect the main power cable to the connection point and place the fuse on top, see Image 30:1 and Image 30:2.
3. Connect a cable from the battery's positive terminal, see Image 30:3.
4. Screw the cable connections and fuse into place with the knob. Install the cables at 90° or 180° from each other. Install the fuse at right angles to the cables, see Image 30.

WARNING!

The knob must lie against and centre the cable clip so that it does not come into contact with the bolt. Incorrect installation can cause the fuse to malfunction. Risk of fire in the event of a short circuit, see Image 31 and Image 32.

5. Install the fuse box cover, see Image 33.

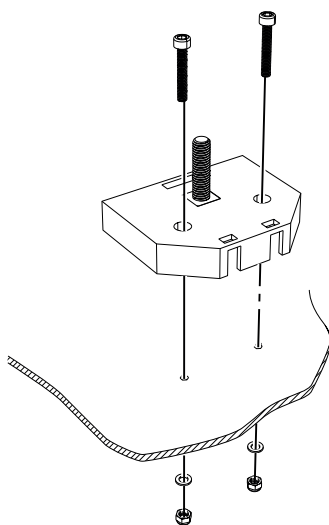


Image 29. Screw the fuse holder into place

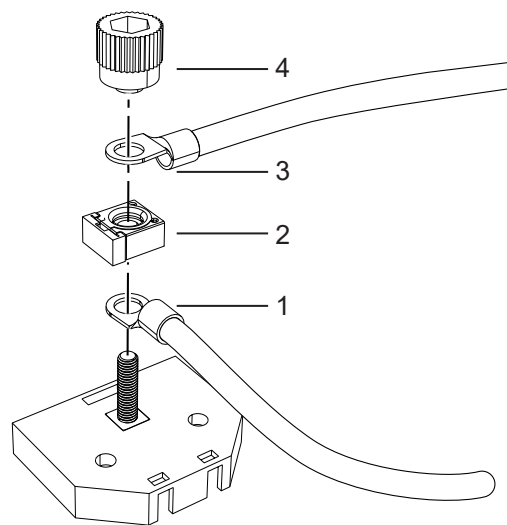


Image 30. Place fuse and connect wiring

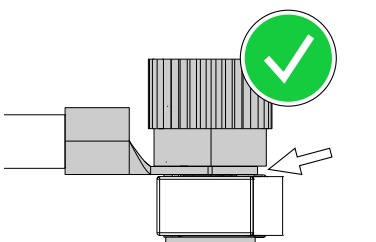


Image 31. Correct installation

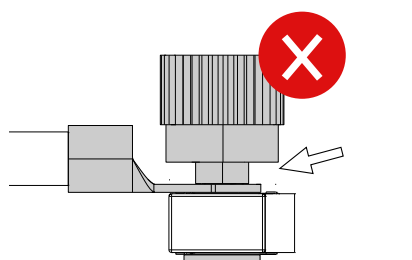


Image 32. Incorrect installation

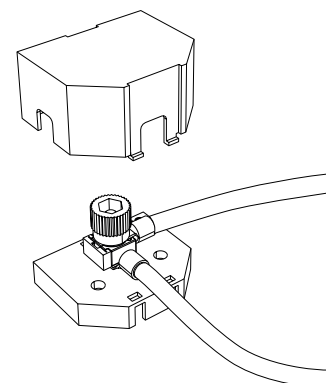


Image 33. Cover fuse box

6.10 Purging the cylinders

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

Tilt cylinders can be purged by closing the platform against the vehicle body and then opening and tilting all the way down.

6.11 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.

7 Hydraulic unit

The lift's hydraulic unit is installed on the right-hand side of the frame, nearest the platform.

To access the hydraulic unit and the oil tank, unhook the protective cap, remove any bolts and lift off the cap, see Image 35 and Image 36.

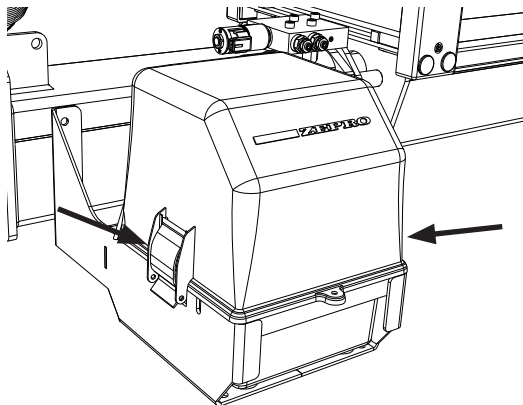


Image 35. The protective cap is secured with two hooks

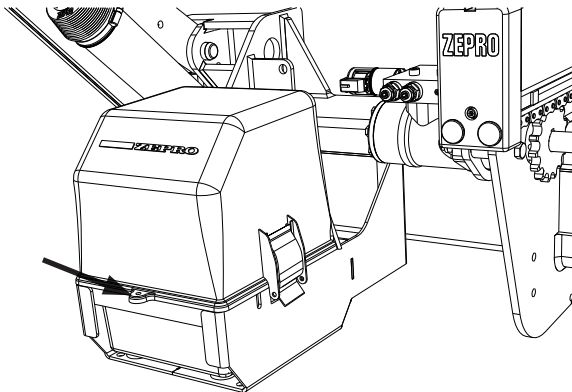


Image 36. The protective cap can be secured with bolts if necessary

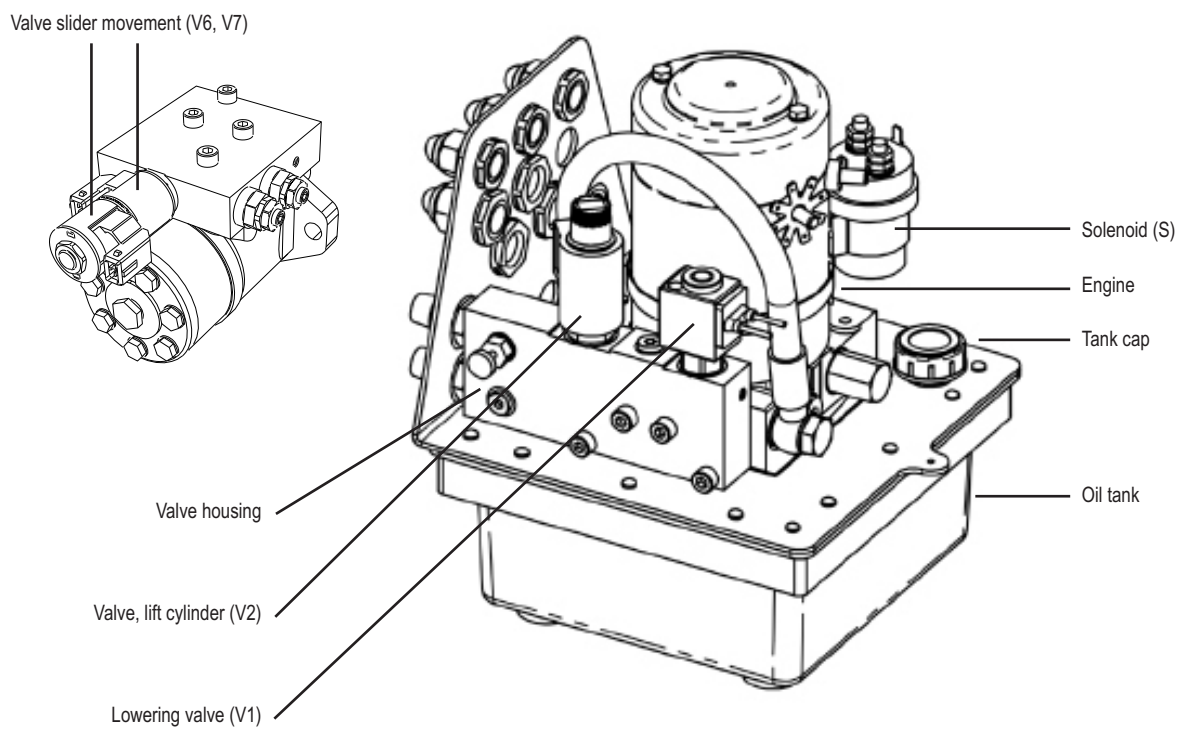


Image 34. Hydraulic unit

7.1 Connecting Control Devices

The image below shows the most commonly occurring control devices (CD), see Image 37. Possible control device models vary depending on configuration and relevant market. The control device is connected to the hydraulic unit's control card, see Image 38.

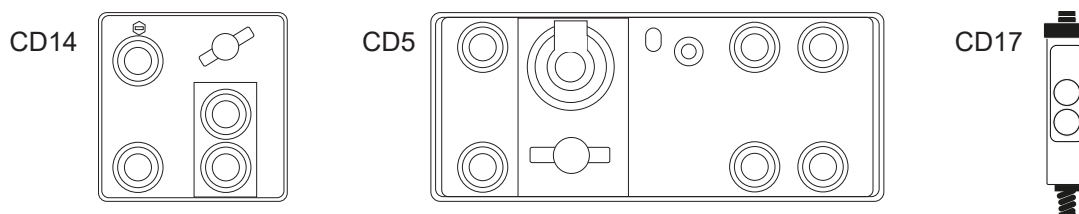


Image 37. Available control device models

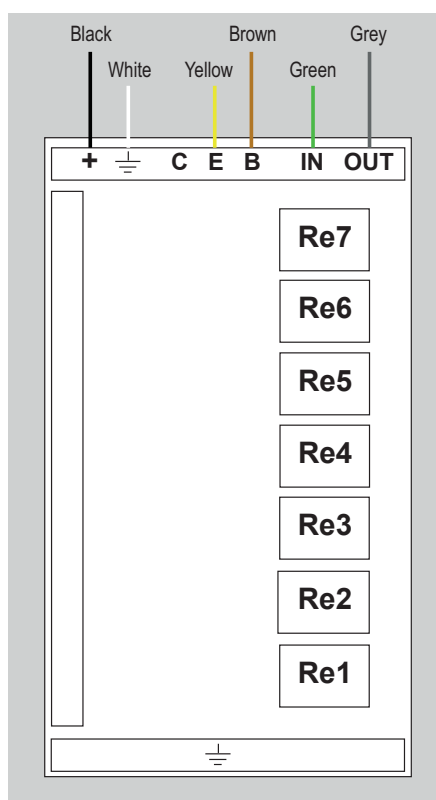
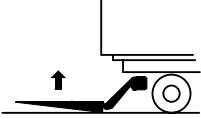
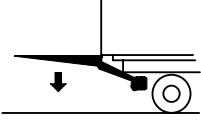
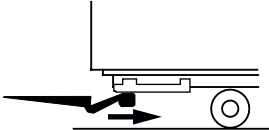
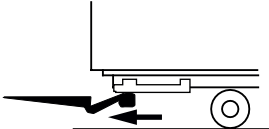


Image 38. Connecting control device

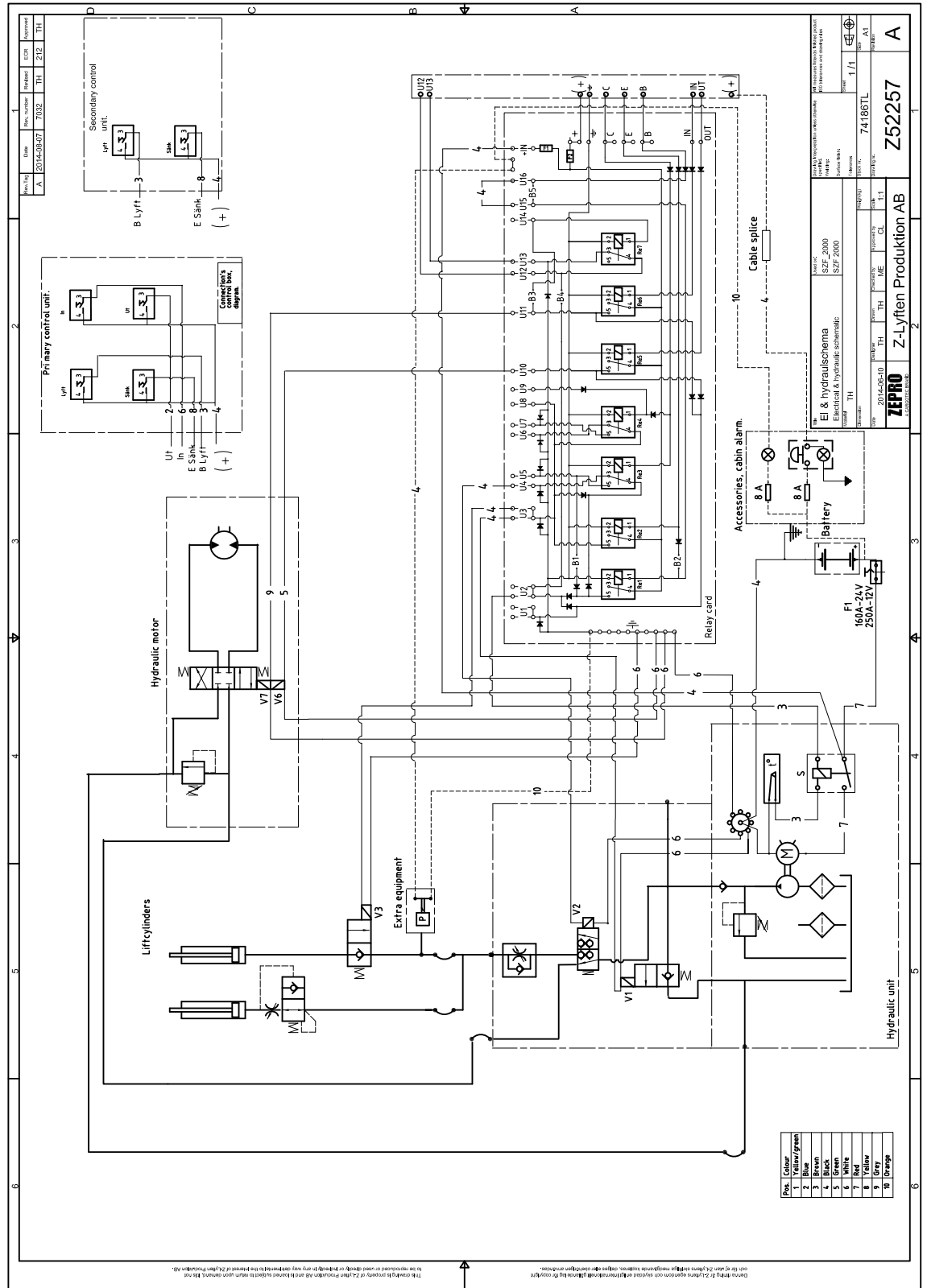
8 Functional schematic drawing

8.1 SZFTS/SZFT 200-160

	Input signal	Output signal	Comment	Control devices	Illustration
Raise	Lift	✓ S V1 ✓ V2 V3 V6 V7		✓ Ctrl 1 ✓ Ctrl 2 ✓ Ctrl 3 ✓ Ctrl 4 Ctrl 5 ✓ Ctrl 6	
Lower	Lowering	S ✓ V1 V2 ✓ V3 V6 V7		✓ Ctrl 1 ✓ Ctrl 2 ✓ Ctrl 3 ✓ Ctrl 4 Ctrl 5 ✓ Ctrl 6	
In	In	✓ S V1 V2 V3 V6 ✓ V7		✓ Ctrl 1 ✓ Ctrl 2 ✓ Ctrl 3 ✓ Ctrl 4 Ctrl 5 ✓ Ctrl 6	
Out	Out	✓ S V1 V2 V3 ✓ V6 V7		✓ Ctrl 1 ✓ Ctrl 2 ✓ Ctrl 3 ✓ Ctrl 4 Ctrl 5 ✓ Ctrl 6	

9 Electrical and hydraulic drawings

9.1 SZFTS/SZFT 200-160



10 Marking and decals

10.1 Summary

The illustrations below show the positions of the various decals.

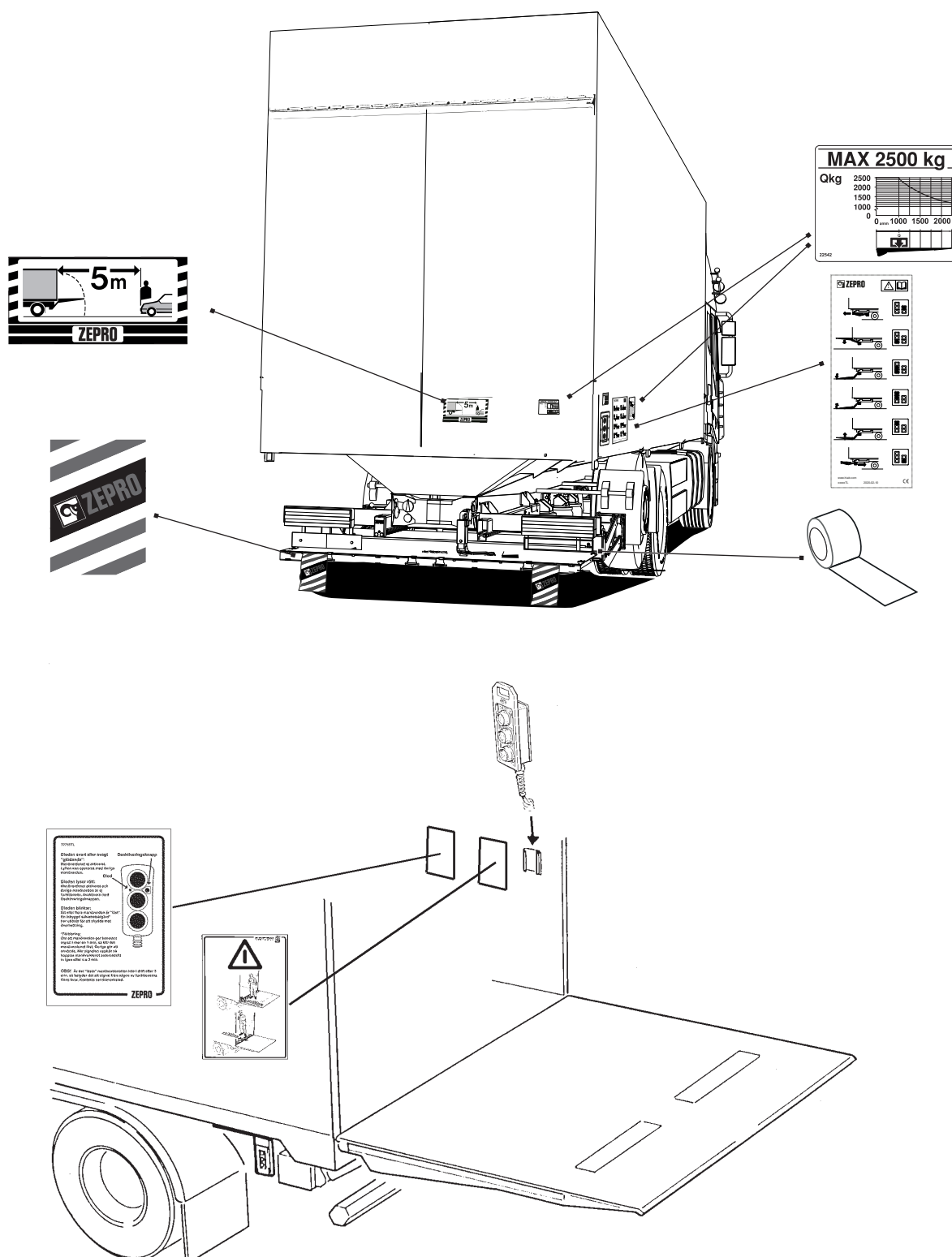


Image 39. Marking and decals

10.2 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.

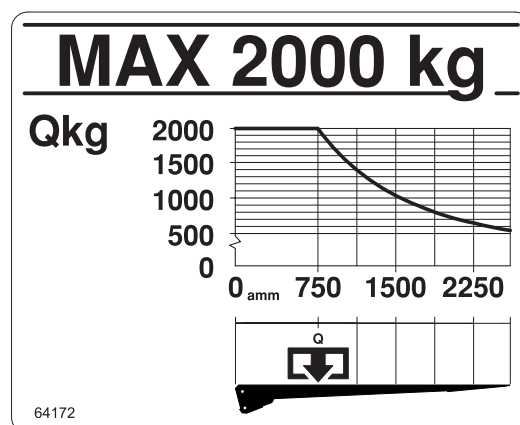


Image 40. Load diagram

10.3 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.

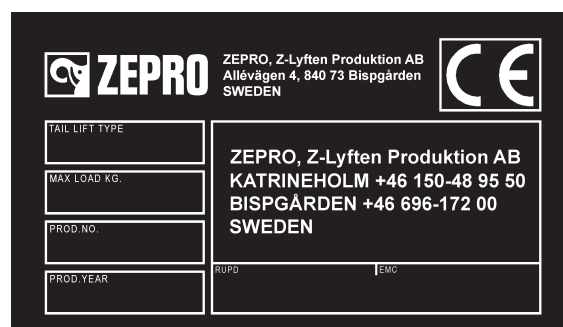


Image 41. Identification plate

10.4 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.

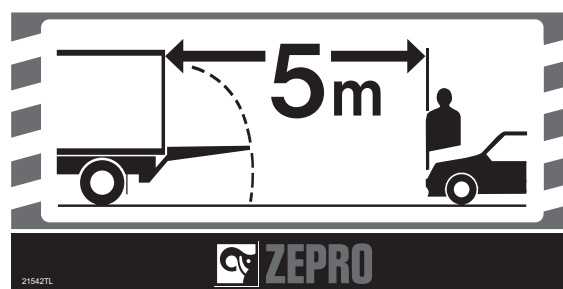


Image 42. Work area

10.5 Control panel

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

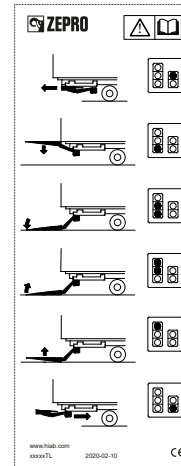


Image 43. Driver's instructions

10.6 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.

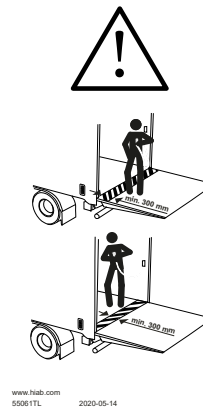


Image 44. Danger area

10.7 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.

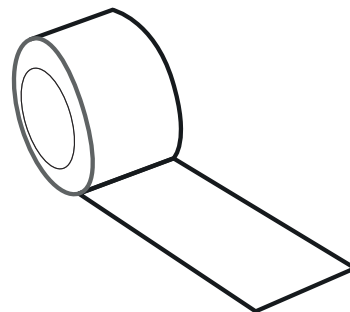


Image 45. Warning tape

10.8 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 lowered to the ground. Swage the tracks together to secure the warning flags.



Image 46. Warning flags

10.9 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.



Image 47. CE marking

11 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.

NOTE.

Use LE lubricant 4622 or the equivalent.

1. Right lifts, at lower bearing.
2. Right parallel strut, at lower bearing.
3. Left parallel strut, at lower bearing.
4. Left lift arm, at lower bearing.
5. Lift cylinder, at lower bearing.
6. Lift cylinder, at upper bearing.
7. Left parallel strut, at upper bearing.
8. Left 1st boom, at upper bearing.
9. Right 1st boom, at upper bearing.
10. Right parallel strut, at upper bearing.

11.1 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).

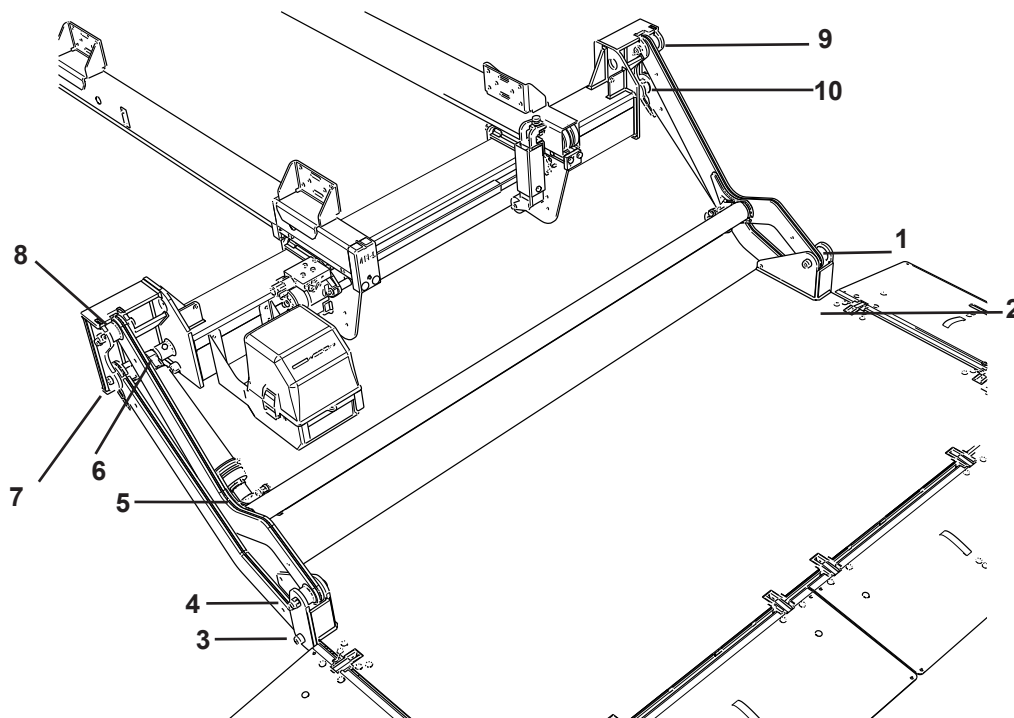


Image 48. Lubrication points

12 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.

12.1 Static load test

12.1.1 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.

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 on the vertical (points A and D) and 2° in terms of the angle.

12.1.3 Static load (Test load 1.25 x tail lift loading capacity). For tail lifts with load centre of 750 mm

Capacity	Load 1000 kg	Load 1500 kg
	Distance out in platform (L)	
2000 kg	1875 mm	1250 mm

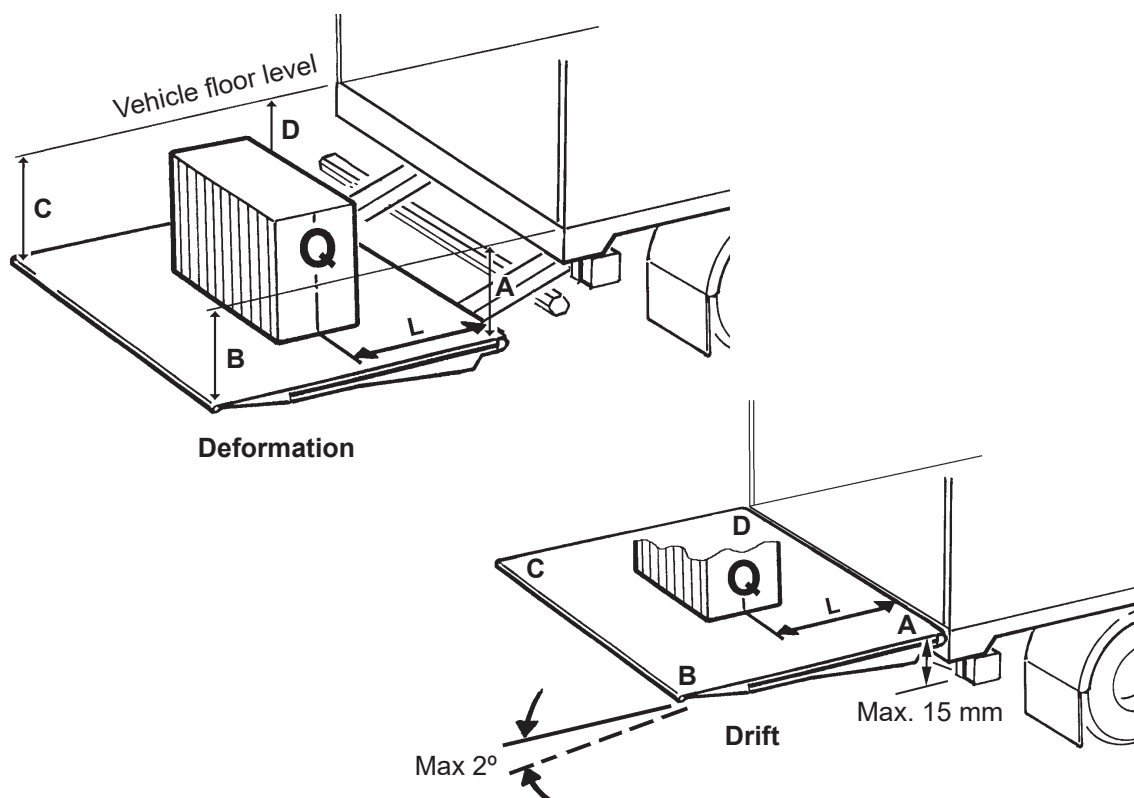


Image 49. Testing and verification

12.2 Dynamic load test

12.2.1 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 with loads in its normal range of movements, 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 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 lift gate cannot lift the load when the up function is switched on (it may however be possible to tilt up the load).

12.2.3 Dynamic load (Test load 1.0 x tail lift loading capacity). For tail lifts with load centre of 750 mm

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

12.3 Test of safety functions

The tail lift functions must be tested.

Check:

- That the red light in the vehicle cabin turns off when the platform is completely closed against the body and that it turns on when the platform is opened (where applicable).
- That the tail lift will not operate if the cabin switch is in the off position.
- That the tail lift cannot be operated when the main switch fuse is removed (where applicable).
- that the overflow valve is activated when the lift is operated up to the vehicle floor level or end stops.
- That the tail lift cannot be lowered or tilted down if the electrical connector from the electric hose breakage valves is removed from the lift and tilt cylinders respectively.
- That there is a "max. load" marking on the platform and it is correctly positioned according to the loading diagram for the tail lift model concerned.
- That warning flags and reflectors are fitted and fulfil their function correctly.
- That all safety and operating decals are installed in their respective position.
- That the mechanical lock of the platform functions correctly (where applicable).
- That the instructions for using the tail lift have been left in the driver's cabin.
- That the CE declaration of conformity has been completed.

13 Disassembly

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

- Support the platform with a crane or similar equipment that can safely carry the platform's weight (NB. weight info).
- Remove the tilt cylinder upper axles in the platform and carefully rest the cylinders on the ground.
- Run the tilt cylinders to their minimum stroke limit to remove pressure from the circuit.
- Remove the lock screws in the platform axles.
- Remove the axles by knocking them out with a hammer and suitable drift.
- Lift off the platform.
- Raise the lift arms to their highest position.
- Disconnect +12-24 V from the control card.
- Disconnect all control devices from the control card.
- Support the support frame from beneath, for example with a car jack.
- Remove the support frame from the vehicle chassis by loosening the mounting screws and carefully lowering the support frame to the ground with a workshop jack.

14 Specifications

14.1 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.

Some components of the tail lift must be manipulated by ceiling cranes and therefore could represent hazards if their weights exceed the crane's permitted load. The following table shows the ranges of weights for various heavy components.

Complete Lift chassis (without platform) (2125mm slide profiles)		Lift components (part of complete lift chassis)	
SZFT/SZFTS 200-160	> 460 kg	Support frame	118 kg
Platforms		Lift arm	81 kg
Steel Platform1200x2300mm	> 300 kg	Lift cylinder	12 kg/pce.
		Slide profile	45,5 kg
		Tie rod	19 kg
		Frame bracket	17 kg/pce.
		Hydraulic unit 5715	18 kg

14.2 Maximum power consumption - Minimum recommended conductor cross sectional area

SZFT/SZFTS 200-160 (160 bar)

5715	24 volt
Pump - Motor unit	145 A
Magnet (hydraulic unit)	2.1 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	35 mm ²
Battery	
Min. capacity, I_{min}	180 Ah
Min. voltage during operation, U_{min} (at lift)	18 Volt

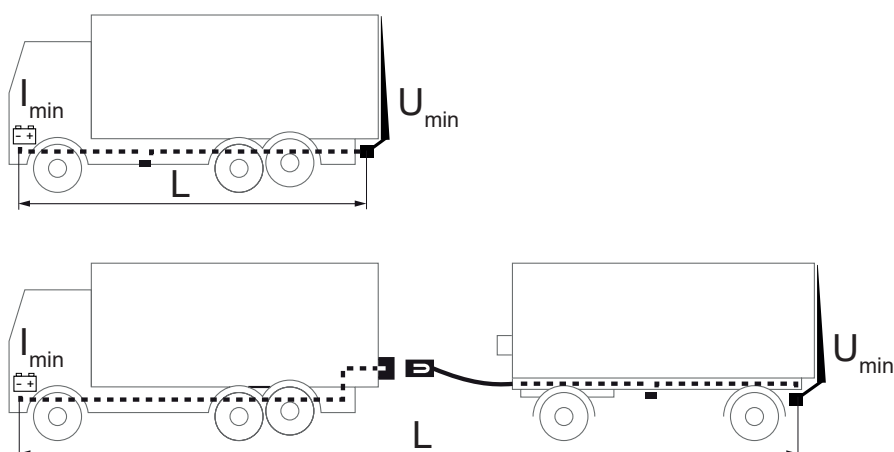


Image 50. Power consumption Max.

14.3 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.

14.4 Loading diagram

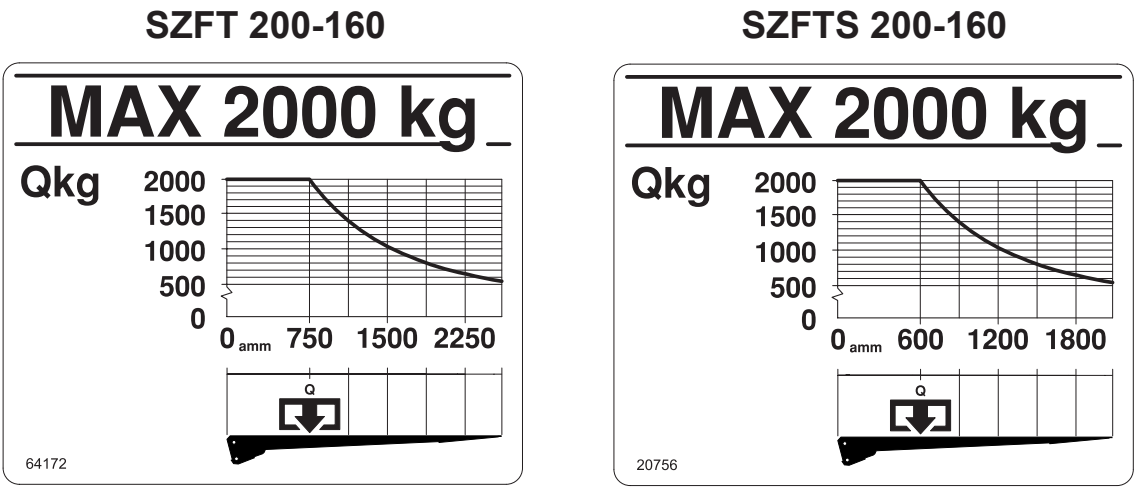


Image 51. Loading diagram

14.5 Tightening torque

NOTE!

All specified torque values apply for use with a screw or impact wrench with torque control. Torque distribution max $\pm 5\%$.

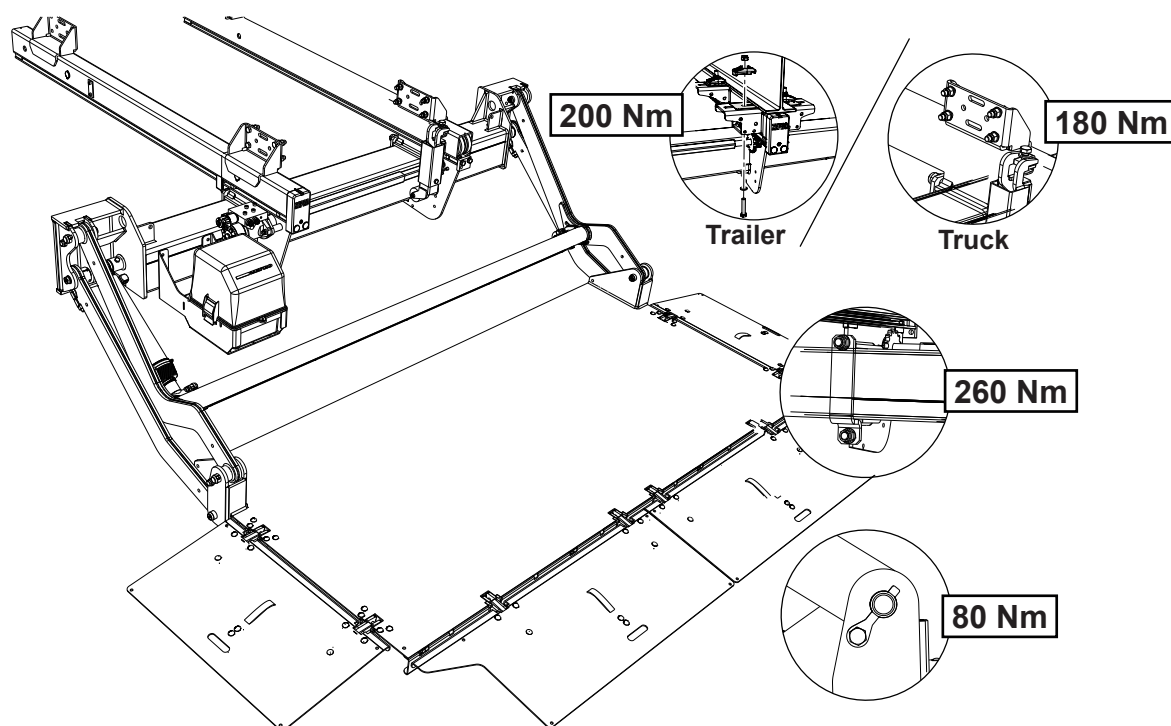


Image 52. Tightening torque



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.