COMABI

LADDER LIFT APACHE 5

ORIGINAL ASSEMBLY MANUAL

This manual must be issued to the ladder lift erectors

Product conforms to standard NF EN 12158-2+A1 and Machinery Directive 2006/42/EC.
Last update: 01/02/2022
Assembly manual: 106-A000033963 AE

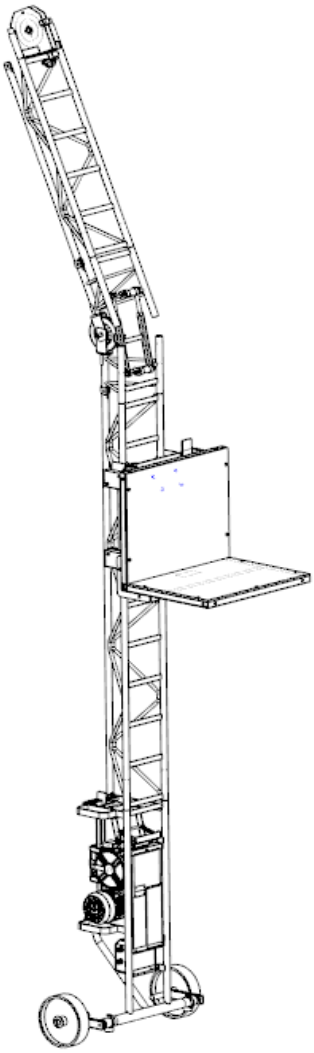


Table of contents

Table of contents

Chapter 1: General warning

Warning:

- Before using the machine, and to ensure that it is used safely and efficiently, you should read this instruction manual and comply with all its requirements.
- All operators should have access to this manual; it can also be downloaded from the company internet site [www.tubesca-comabi.com].
- This manual applies to all versions of the machine.
- The site manager is responsible for ensuring that current user regulations are applied.
- Review the instructions on the panels or pictograms fixed to the machine, and ensure that they are legible.
- Ensure that any person you authorise to work on the machine is suitable for taking on the safety requirements of this role.
- Prevent all unauthorised access to the machine when it is not in use.
- The manufacturer accepts no responsibility for any consequences resulting from any modification made to the machine.
- Read the relevant safety regulations for this machine and strictly comply with them.
- This machine should be used by professional users only.
- Users should be trained in assembling and using ladder lifts or furniture lifts.
- The packing does not reflect the way in which components should be assembled.

Prohibited uses (non-exhaustive list):

- Never use a machine which is not in good apparent condition.
- Do not use the machine if the wind speed is above 45 km/hr.
- Do not remain near the machine if the wind speed is above 110 km/hr.
- Do not use the machine in explosive atmospheres and / or tropical conditions.
- Do not use the machine during stormy conditions.
- Do not use the machine outside the following temperature range: - 5°C / + 40°C.
- Never apply a load or an effort in excess of the working load limit to the machine.
- Never use the machine for a task it is not intended for.
- Never place obstacles on the ladders.
- Never place hands on the trolley rails when it is running.
- Never place hands inside the winch.
- Do not inhibit the safety devices (limit switches).
- Do not overload the machine.
- Do not transport people using the trolley.
- Do not press the control buttons intensively.
- Do not reverse the direction of travel before the trolley has reached a complete stop.
- Do not move loads when staff are below them.
- Do not use the machine without the necessary struts or supports to achieve good stability.
- Do not use the machine for unstable loads without the anchoring device.
- Do not disable the manual control (buttons).

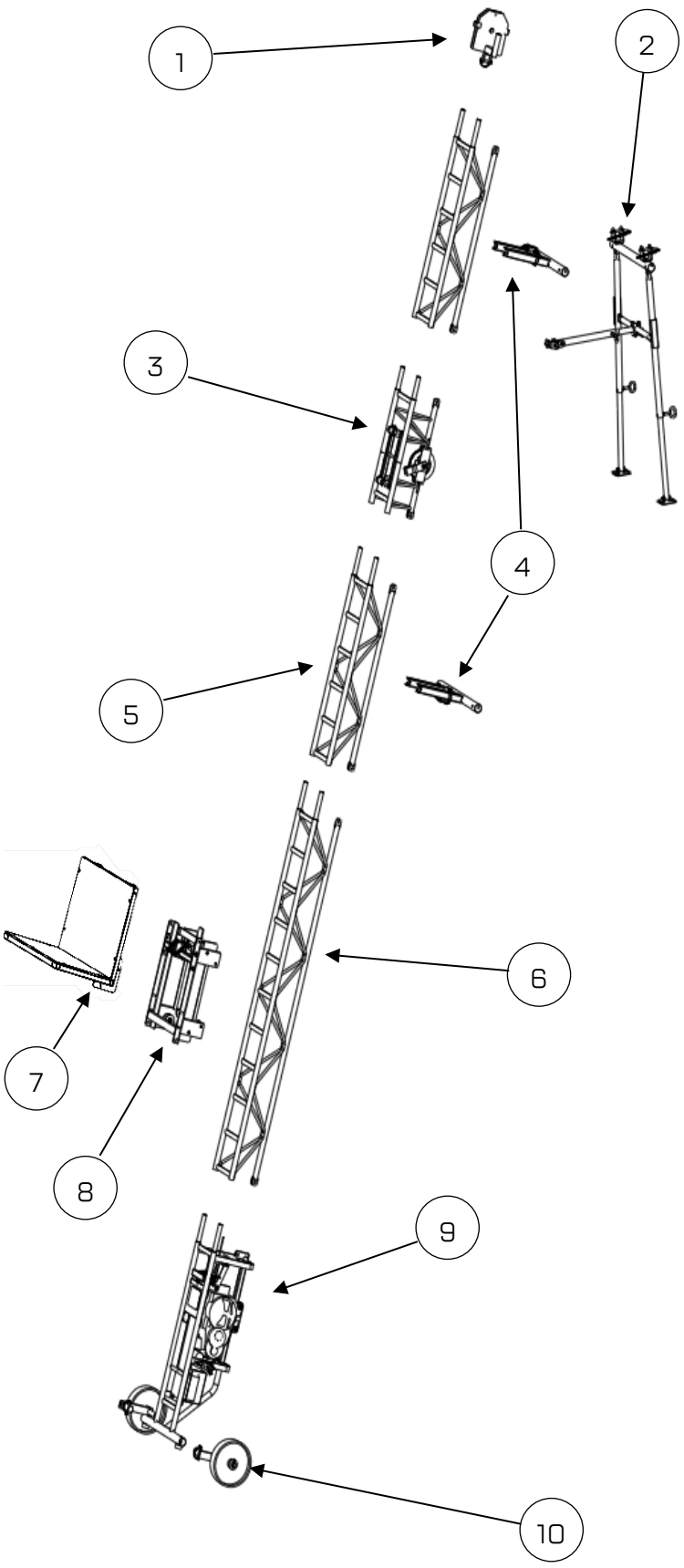
Chapter 2: General product description

General points:

- The machine is very compact.
- All accessories are delivered separately.
- This machine enables materials to be raised to varying heights.
- To work safely, use the appropriate accessories for each material.
- Building height is a significant factor which impacts wind speed.
- This machine can be used in different height and tilt configurations (page 12).
- The noise level is below 70 dB (A).
- Duty cycle: do not exceed 30 starts/hour.

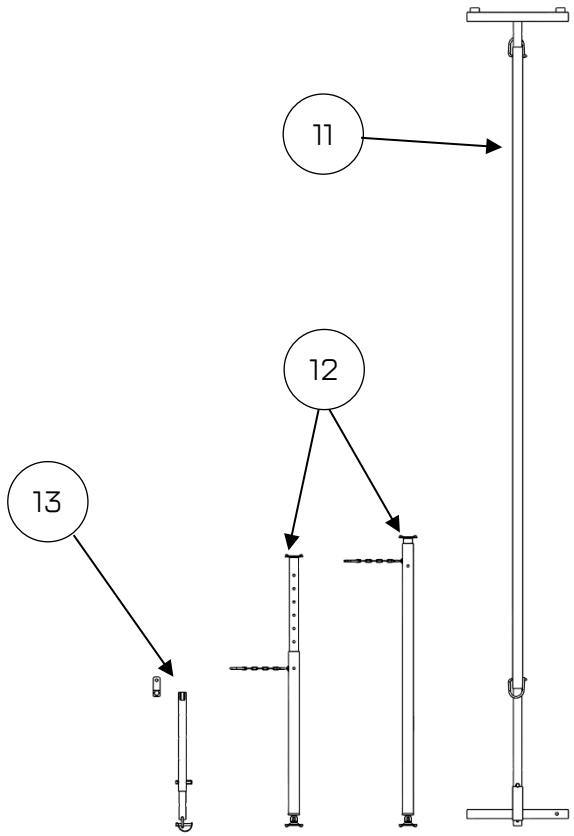
Exploded product view:

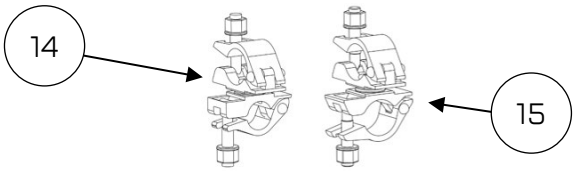
Number	*Ref.* *Name*
1	33955 Head section
2	33618 High head support
3	33616 Bend section
4	5011909 Simple adjustable support
5	27305 1.00m Ladder
6	27300 2.00m Ladder
7	5011915 Universal platform
8	5011917 Trolley
9	5011923 Base (frame, winch, cable, shackle, electrical box)
10	33593 Wheel assembly

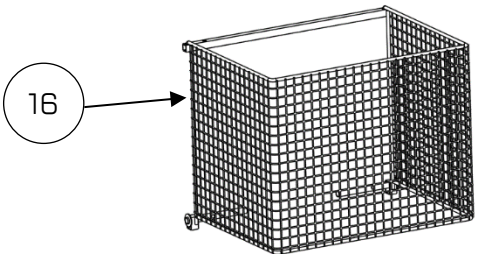


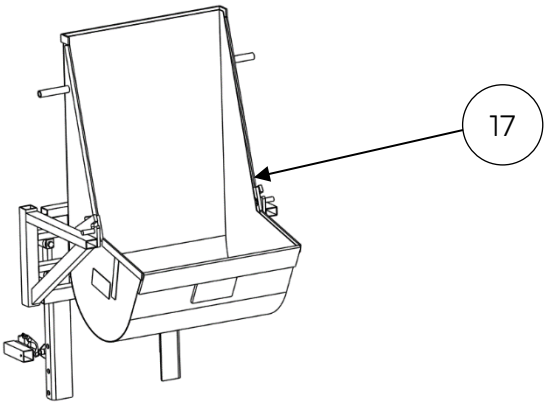
Accessory pictures:

Number	*Ref.* *Name*
11	33614 Simple strut
12	4230050 Window attachment strut 1.3m to 2m & Window attachment strut 0.8m to 1.3m
13	33951 Tilt adjuster
14	4230026 Adjustable double clamp 35/49
15	81440 Adjustable double clamp 40/49
16	32863 Tile carrier
17	5011901 60L Skip assembly

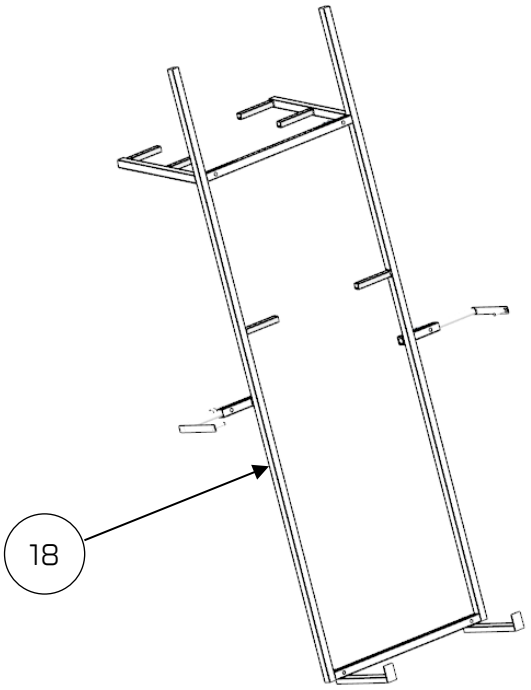






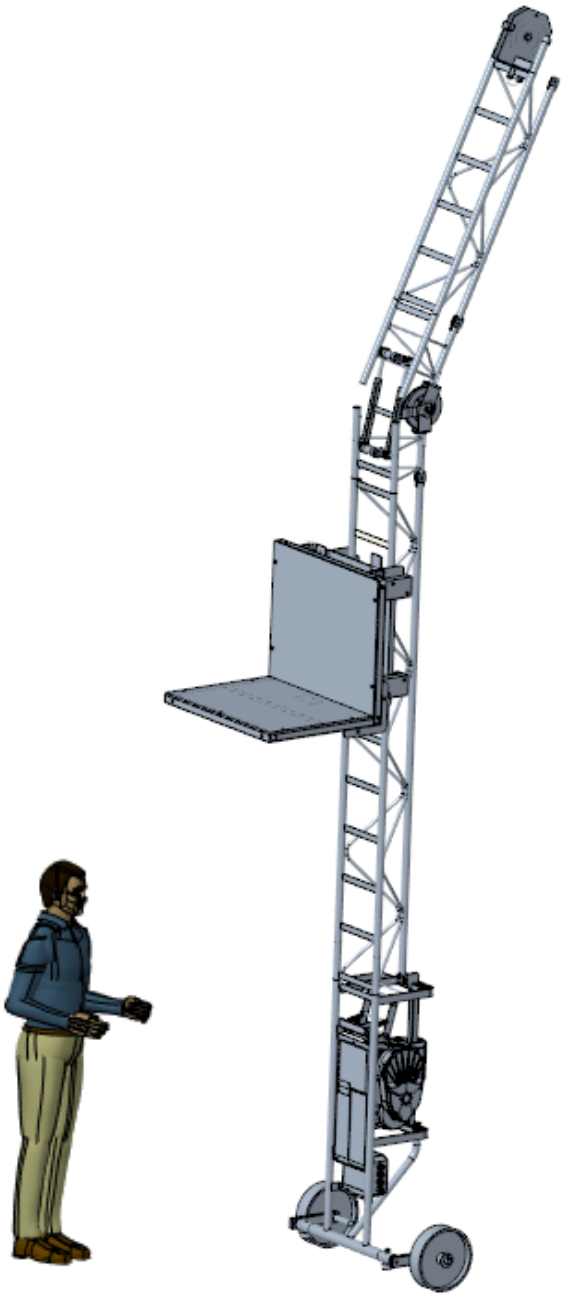


Number	*Ref.* *Name*
18	32796 Panel carrier pack 1.40 x 3.00m



Chapter 3: Workstation

The working area should be marked out with at least 2 horizontal one-metre-high barriers to avoid any risk of injury from falling objects. The protected base area should cover a radius of at least 1.4m beyond the widest part of the load to be transported. The access opening should be a maximum of 1.4m wide.



From the control unit, the operator should be able to check that there is no-one in the path of the trolley. If that is not possible, then several operators, equipped with a suitable means of communication (two-way radios, telephones, loudspeakers), should be positioned so that they compensate for the operator's lack of a direct view.

Remember, it is dangerous to:

- Approach the machine except for loading or unloading it.
- Remain or simply pass through the load transport area unless the winch motor is stopped and the trolley is at the bottom of the machine.
- Place anything at the base of the ladder lift, or under moving equipment, or under a platform or a skip which is in the process of being moved, loaded or unloaded at a higher level.
- Touch or try to touch a moving part (rollers, cables, etc.) or the guides and frame whilst the ladder lift is operating and the control unit has not been inhibited.

When the ladder lift is used in poor lighting conditions, sufficient worksite lighting should be provided so that the ladder lift is clearly visible throughout its entire length.

The machine working area should be clearly marked and kept clean.

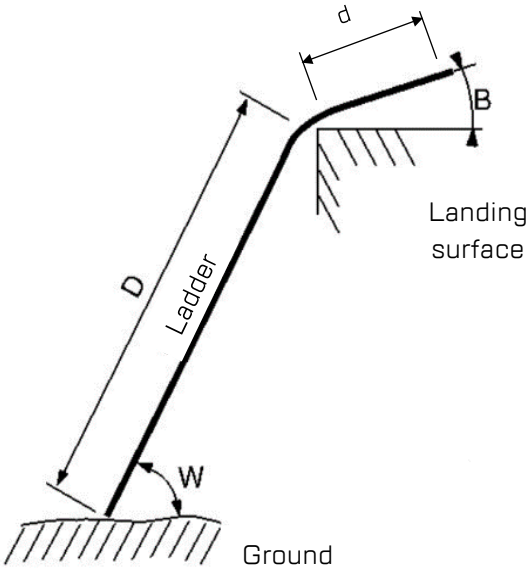
Chapter 4: Spare parts

Base parts		
Name	Code	Weight (kg)
Base	5011923	48
1m Ladder	27305	7
2m Ladder	27300	10.7
Bend section	33616	13
Head section	33955	2.7
Trolley	5011917	14.2
Simple adjustable support	5011909	4.5
Wheel assembly	33593	2
High head support	33618	10
Accessories		
Name	Code	Weight (kg)
Universal platform	5011915	11
Material carrier side panel	32708	5
Skip assembly (60L)	5011901	44
Masonry pack	5011904	53.2
Tile carrier pack	32863	6
Simple strut	33614	20
Adjustable double clamp 40/49	81440	2
Adjustable double clamp 35/49	4230026	1.5
Window attachment strut 0.8m to 1.3m	4230050	4.7
Window attachment strut 1.3m to 2m	4230051	6.3
Tilt adjuster	33951	1.5
Panel carrier pack 1.40 x 3.00m	32863	6

For any electrical components (capacitor, motor, switches...), please contact the TUBESCA-COMABI After Sales Service

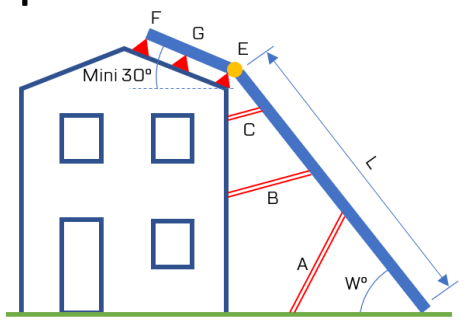
Chapter 5: Operating specifications

- Machine intended for construction materials.
- Maximum load = 150 Kg.
- 2m to 20m in length with 2m and 1m ladders, and a bend section.
- Operating angle:
  - W = 45° to 90°
  - B = a minimum of 25° relative to the landing surface.
- Distance between the ground and the 1st roof support = D
- Distance before the bend section: D min. = 5m
- Distance after the bend section: d min. = 1m, d max. = 6 m



Service Factor 50%
(Operational time = Rest time)

Apache



Do not use the machine if the wind speed is above 35 km/h.
If the bend section is being used, put supports at E and F.
If the distance EF>4m, put a support at G (distance EG = distance GF).

W° \ L	≤ 4m	≤ 6m	≤ 8m	≤ 10m	≤ 12m	≤ 14m	≤ 16m	≤ 18m	≤ 20m
45° ≤ W ≤ 75°	A	A	A+B	A+B+C	A+B+C	A+B+C	Danger zone: contact us		
75° ≤ W ≤ 90°	-	A	A	A	A+B	A+B	A+B+C	A+B+C	
90° ≤ W	Anchor every 4 metres								

Chapter 6: Winch specifications

Intrinsic specifications:

- Plug 16 A protection IP 44
- Power 0.75 kW
- Service factor: 50% (Operational time = Rest time)
- Speed 22m/min (according to the length of the machine)
- Remote control: up/down + emergency stop 24V protection IP65
- Electric top limit switch
- Cable-slack-detection bottom limit switch

Pull cable specifications:

- Ø: 5mm
- Min. breaking strength: 1,632kg
- Length: 42m

Connection:

- 230VAC/16A single phase power supply.
- Upstream 30mA differential circuit breaker.
- 3x2.5mm² electric cable for extensions less than 25m.
- A 5.5 kW generator is suitable for powering the machine.

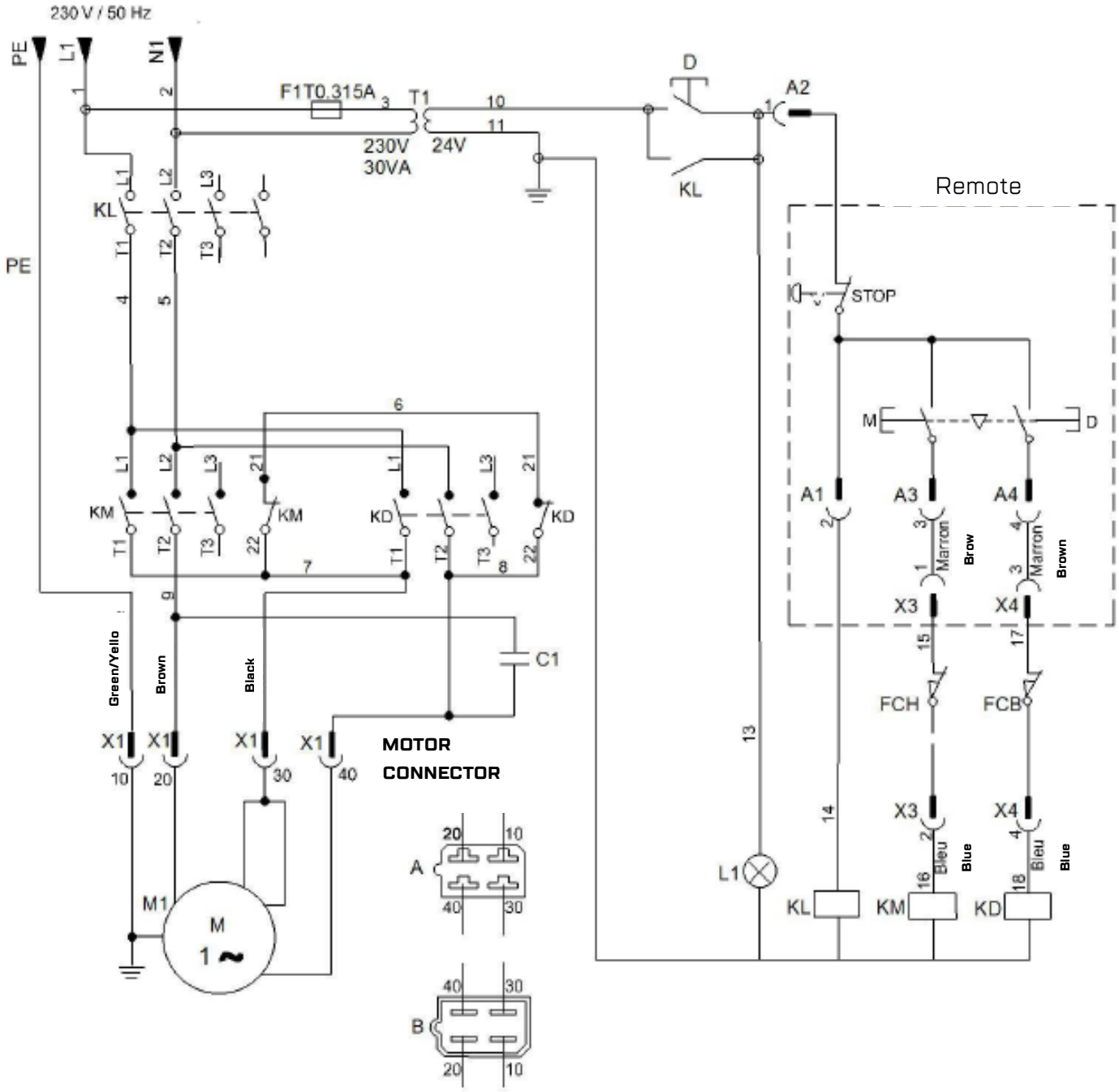
Remarks:

- It is usual for the motor to get warm during routine use.
- The winch will only reach maximum power if the right cable has been used for the power supply.

Circuit diagram:

LEGEND

M1: single phase motor 0.75kW
X1: female motor connector
X2: male motor connector
X3: connector
X4: connector
KL: power supply contactor
KM: up contactor
KD: down contactor
C1: capacitor 60mf./450V
T1: transformer 230/24V
STOP: emergency stop pushbutton
M: "up" pushbutton switch
D: "down" pushbutton switch
FCH: Top limit switch
FCB: Bottom limit switch
L1: power light



Chapter 7: Handling – transport – storage

Handling is done manually as the components are not heavy. The heaviest components (winch and skip assembly) should be handled by 2 people. The wheels can be used on the first extension section to move the winch. The machine, especially the winch, should be stored in a dry place.

The packing does not reflect the way in which components should be assembled.

Chapter 8: Assembly

1. Assembling the ladder lift

To ensure the safe assembly of the machine, the following protective equipment must be worn: gloves, safety shoes, hard hat, and safety workwear which covers limbs.

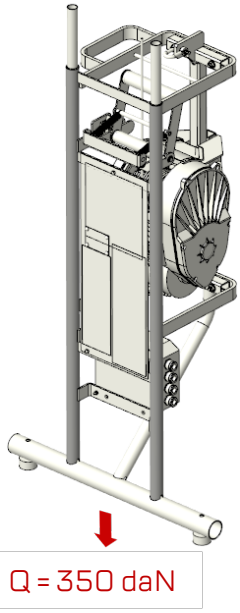
A fall arrest safety harness must be worn for all tasks which might expose the user to a risk of falling.

It is mandatory to ensure that the ground contact points of the machine are correctly dimensioned and take the ground conditions into account. **The ground contact points for the winch base must be capable of withstanding a load of 350kg, and those for the ladder supports should be able to withstand 250kg.**

The supports on the ground, as well as those on windows or roofs, should be levelled correctly.

These supports should be locked in place to ensure greater safety.

Check that the ground contact points of the machine are correctly dimensioned and take the ground conditions into account.



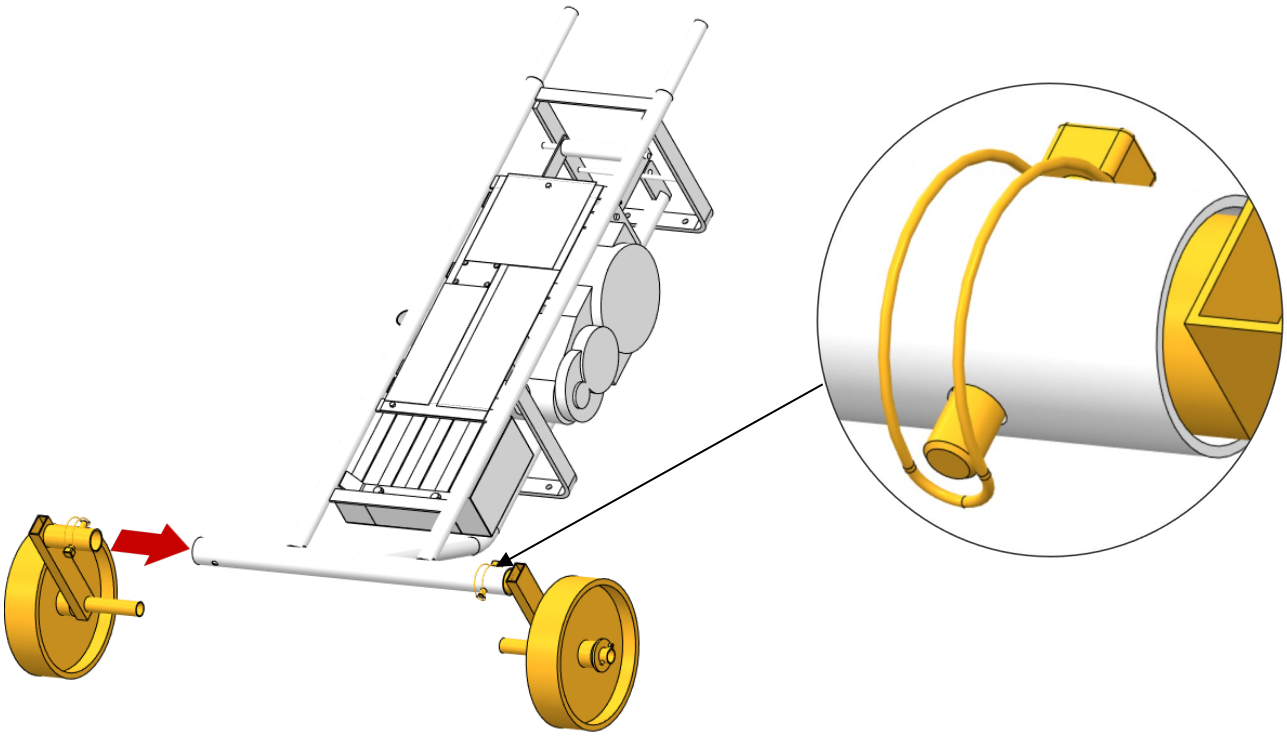
1.1. Mounting the winch assembly

Assembling the initial components, the bend section and the ladders should take place on the ground.

The ladder lift can be used with wheels or rubber stops.

The rubber stops are screwed onto the winch base.

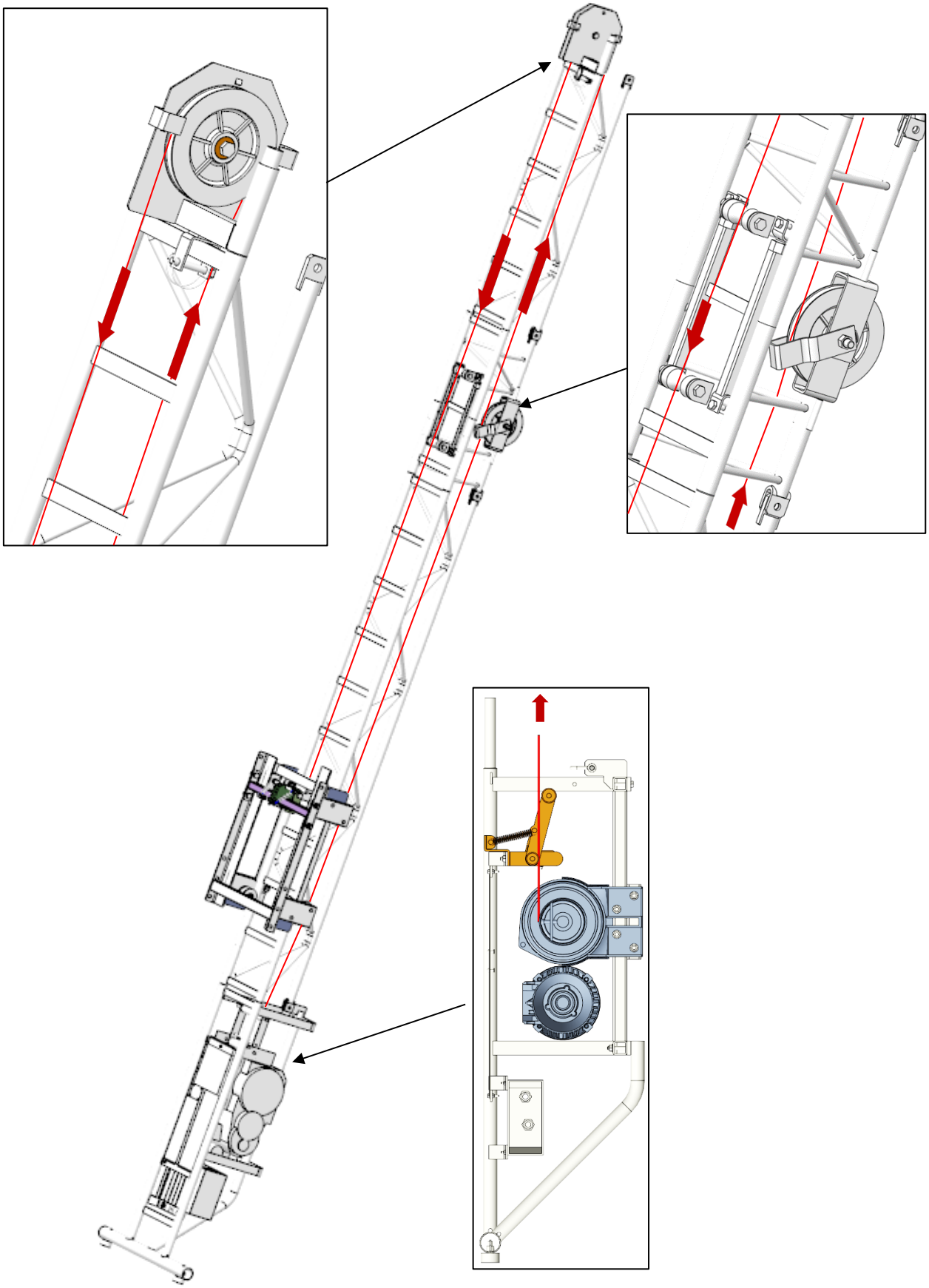
The wheel assembly is mounted onto the winch by unscrewing the rubber stops from the base and then securing them in place with pins.



It is better to use the rubber stops to avoid scratching certain surfaces.

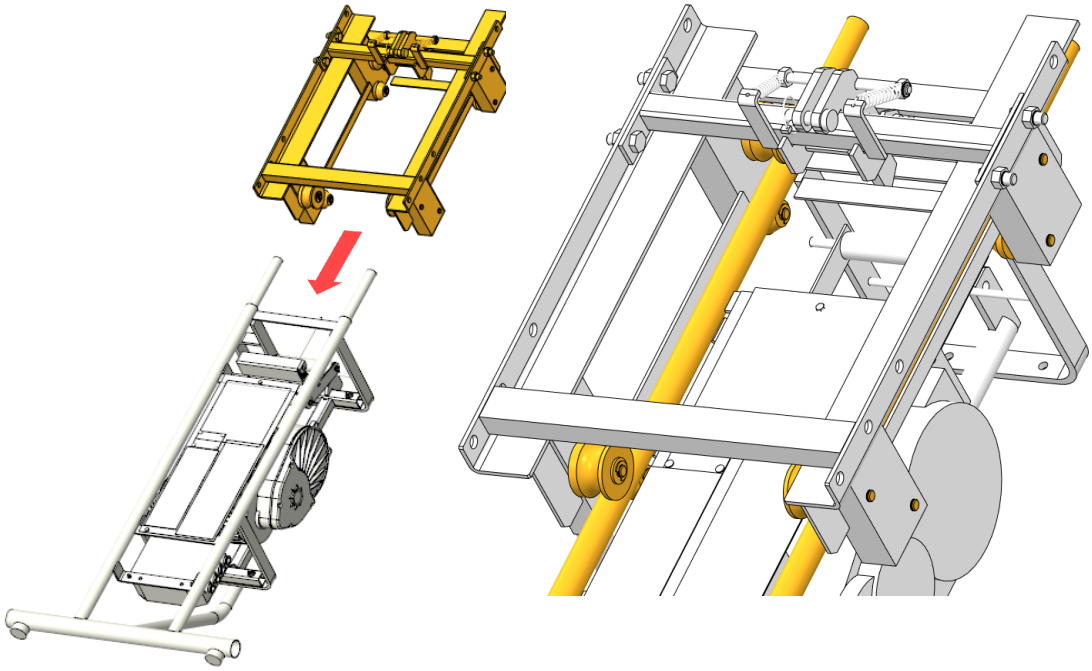
1.2. Running the cable

Follow the diagrams below to run the cable so that the cable slack mechanism is operational.

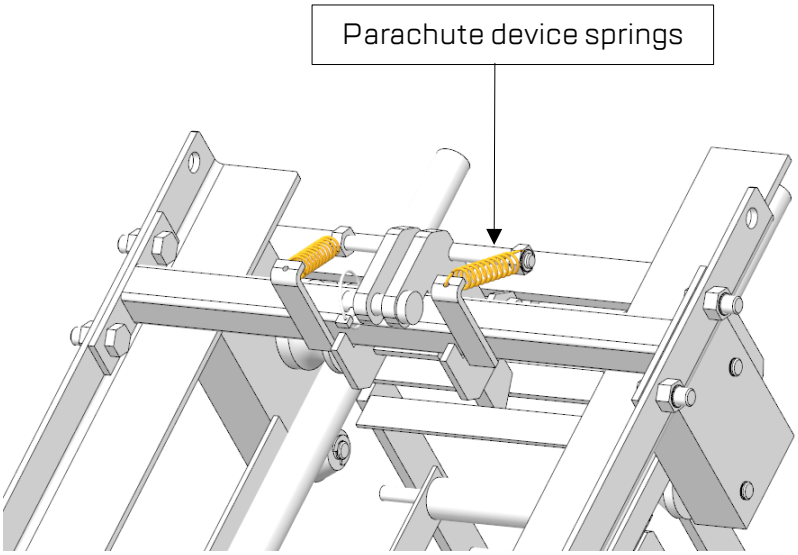


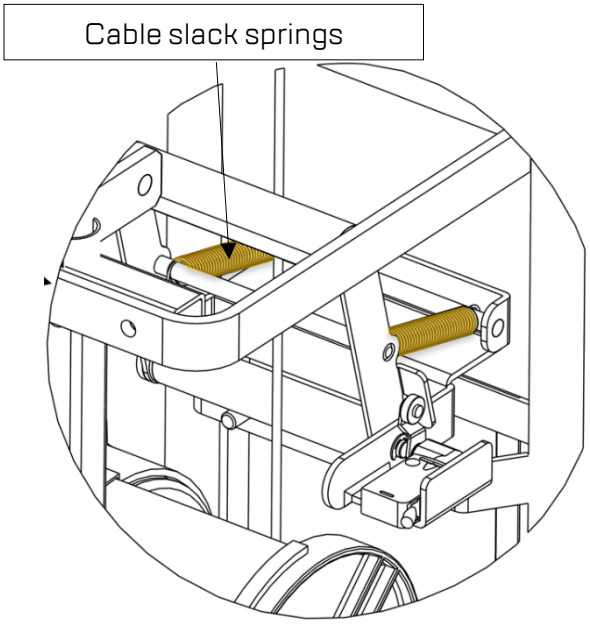
1.3. Mounting the trolley

① Slide the trolley onto the cylindrical uprights of the winch assembly.



② Carefully check that the four springs (two cable slack springs and two parachute device springs) are in place and operational. Replace missing or damaged springs before starting up the machine.



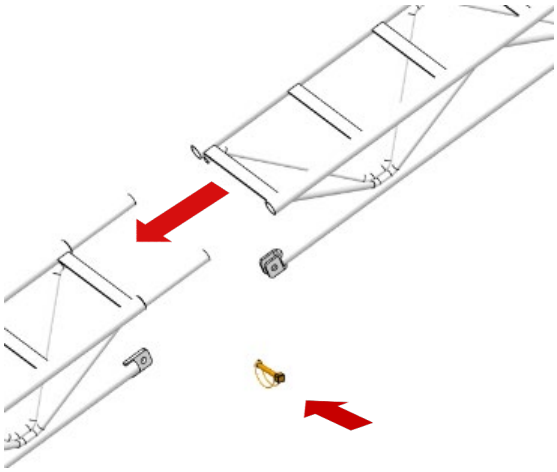


Check that the springs are operating correctly.

1.4. Mounting the extensions and the bend section

① Place one ladder in front the other as shown in the image opposite, then assemble the ladders, after the winch assembly, by inserting the uprights of one ladder into those of the other.

② Pin the ladders together.



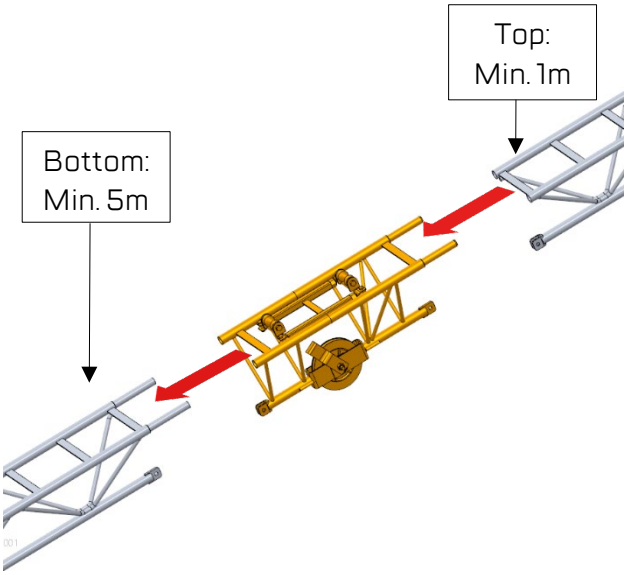
Check that the pins are correctly locked in place.

Bend section assembly:

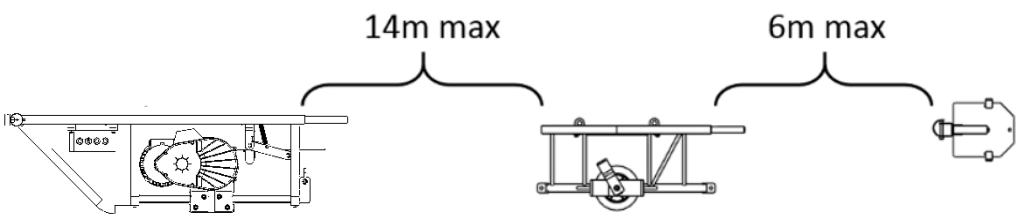
① If necessary, attach the bend section to the structure. Flatten the bend section when it is being assembled.

② In a straight configuration, assemble the bend section in the same way as the ladders (the trolley rails should be straight).

③ A component of a minimum of one metre in length must be added after the bend section, and one of a minimum of 5 metres in length should be added before it.



Ensure that the maximum usage lengths for the ladder lift are always respected:

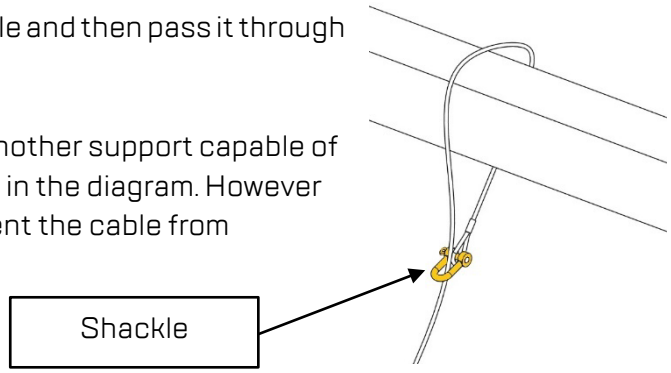


1.5. Lifting the ladder lift into position

① Connect the winch and the top limit switch to the electricity supply.

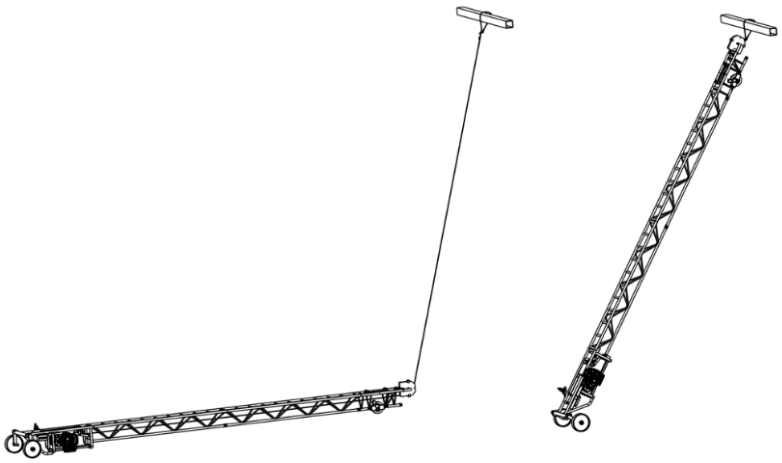
② Keeping the power on, use the motor to unwind the cable and then pass it through the inside of the ladder structure.

③ To raise the ladder lift, attach the cable to a beam or another support capable of withstanding 150kg. The cable can be attached as shown in the diagram. However the use of a sling (not supplied) is recommended to prevent the cable from creasing.



④ Begin lifting the machine by starting the winch to roll the cable onto the drum. Stop when the head section reaches the level of the shackle.

It is important to avoid big jolts when lifting the assembly. This can be achieved by operating the winch continuously.

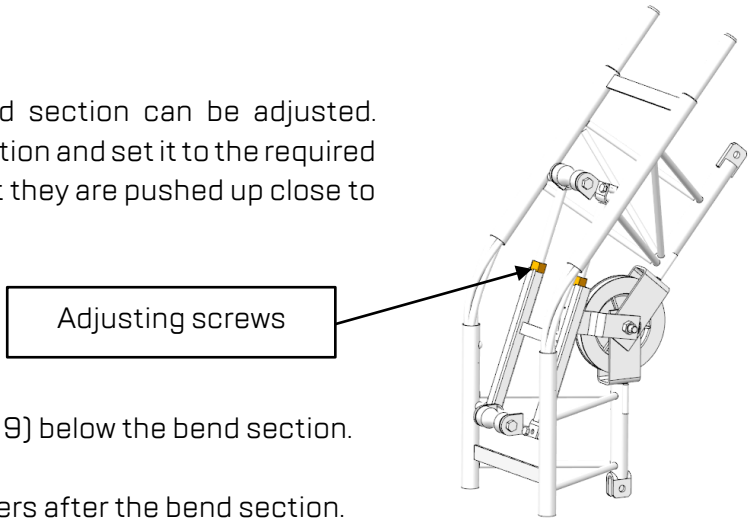


Check that there are no obstructions when the assembly is lifted (power lines, streetlights...).
Fall arrest equipment must be used by operators who are working at height.

⑤ Once the assembly has been raised, remove the wheels and check that the support on the ground is stable and constant. (It could be useful to put the stops back onto the base for tiled or concrete floors...)

⑥ Fasten the ladders to the building.

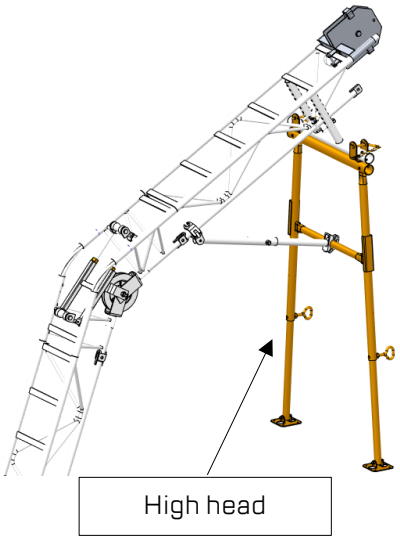
⑦ Give the cable some slack so that the bend section can be adjusted. Unscrew the two adjusting screws on the bend section and set it to the required tilt. Tighten the two screws back up and check that they are pushed up close to the frame.



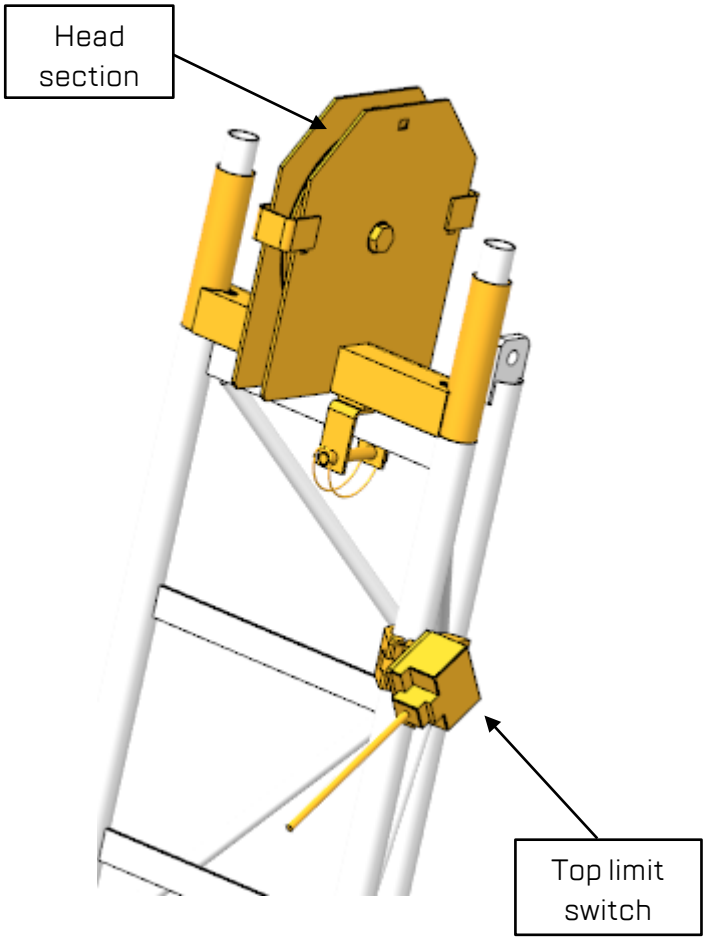
⑧ Mount the simple adjustable supports (5011909) below the bend section.

⑨ Remove the head section, then mount the ladders after the bend section.

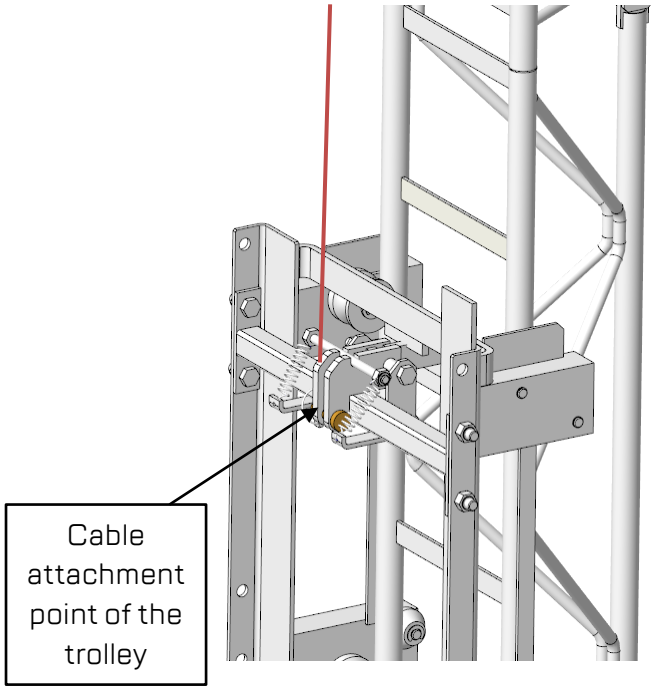
⑩ Reassemble the head section and place a support under it (High head support 33618 or Simple adjustable support 5011909).



⑪ Position the top limit switch on the right-hand upright of the ladder at the required height. Do not attach the top limit switch to the head section.



⑫ Remove the cable from where it is attached, and then unwind it until it is possible to hook it onto the cable attachment point of the trolley.



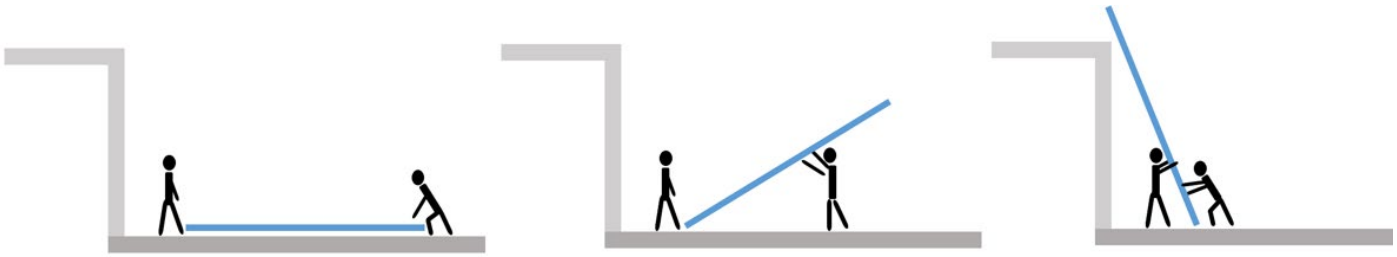
1.6. Pivoting the ladder lift into position

① Follow steps 1, 2, 3, 4 and 5 on page 20 for lifting the ladder lift into position.

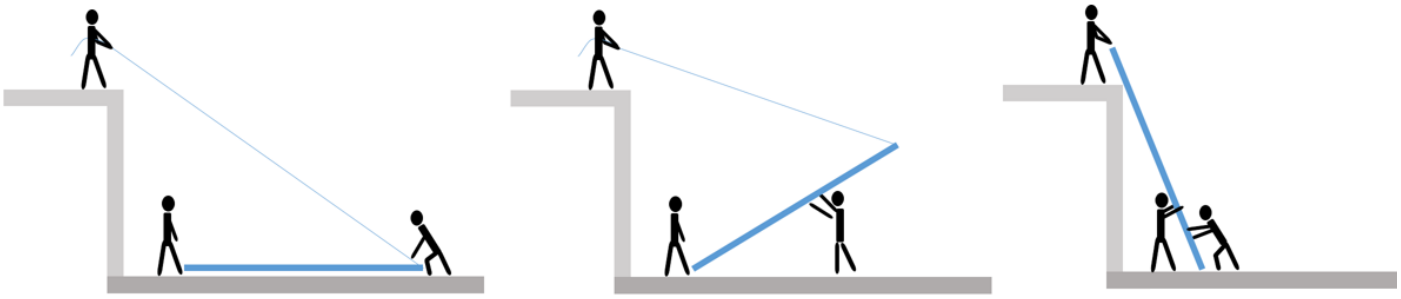
② Hook the cable onto the head section using the shackle.

③ Pivot the assembled ladder lift from the floor to the wall.

Two people on the ground will be sufficient for heights under 6m.



For greater heights, a third person equipped with a rope will need to help pivot the assembly.



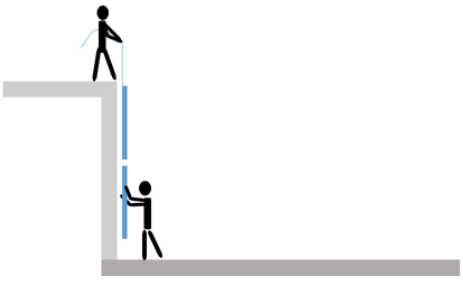
④ Resume the steps for lifting the ladder lift into position from step 5 onwards, on page 20.

People who are at risk of falling should be protected by collective protective equipment or fall arrest safety harnesses.

1.7. Stacking the ladder lift into position

① Assemble the top ladder section to the head section on the ground.

② With people positioned on the roof using a rope (or with a lifting device), hoist this assembly up 2m. The rope should be attached to the last rung of the top ladder.



③ An operator on the ground then assembles the next component and locks these components in place with a pin.

④ This assembly is hoisted again by the height of the newly attached component (do not exceed a load of 25kg per person; see Chapter 4 for component weights).

⑤ Continue in this manner until the winch assembly is mounted.

⑥ Resume the steps for lifting the ladder lift into position from step 5 onwards, on page 20.

To limit operating noise, avoid all non-essential contact between the product and the supporting structure (building, scaffolding...).

People who are at risk of falling should be protected by collective protective equipment or fall arrest safety harnesses.

1.8. Adding the ladder after installation

It is possible to add ladders to a ladder lift which is already in position. To do this, proceed as follows:

① Mount the trolley at the top of the machine.

② Using the remote control, give some slack to the cable whilst holding back the trolley so that the parachute device is activated.

③ Once the parachute device is hooked onto a ladder rung, unhook the trolley cable.

④ Remove the head section.

⑤ Add one or several extra ladders whilst respecting product specifications.

⑥ Unwind extra cable and pass it through the inside of the ladders.

⑦ Replace the head section.

⑧ Re-hook the cable to the trolley.

⑨ Using the remote control, rewind the cable back onto the drum correctly.

⑩ If required, add supports and anchors.

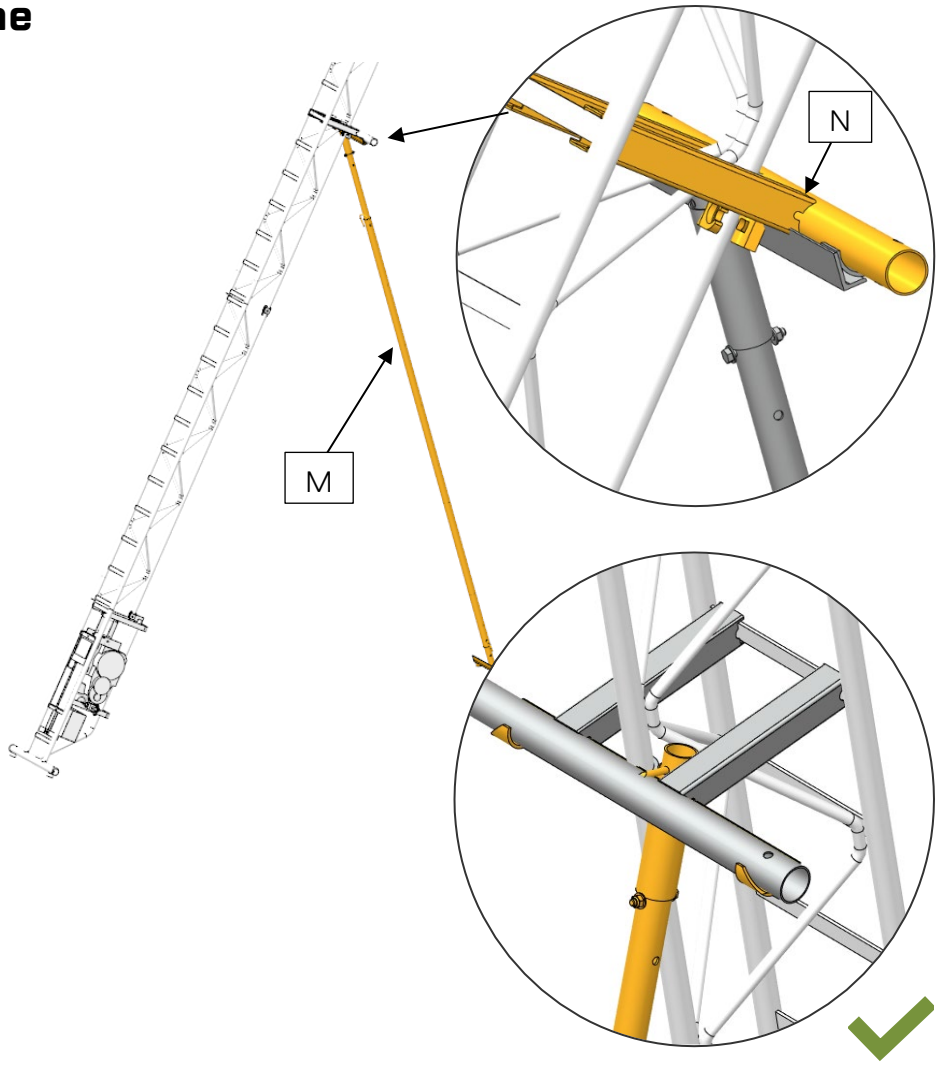
2. Anchoring the machine

Simple strut 33614:

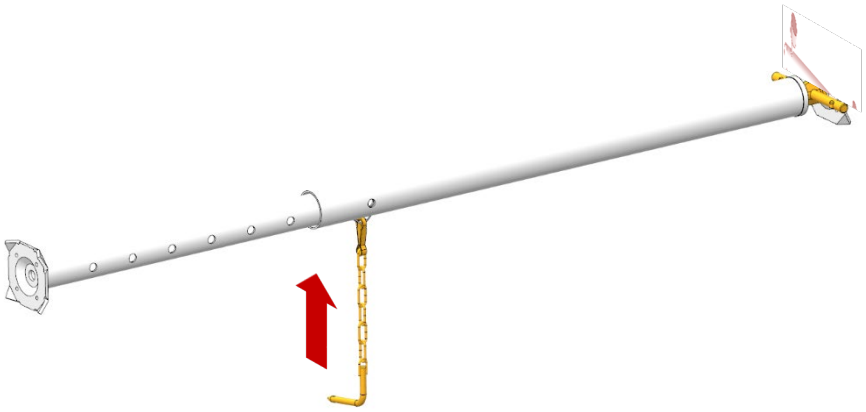
① Position simple strut M onto support N.

② Turn the strut tube by ½ a turn to secure it to the simple support using the trigger.

③ Wedge the strut to the ground or in a window.



Adjustable window strut 04230050:

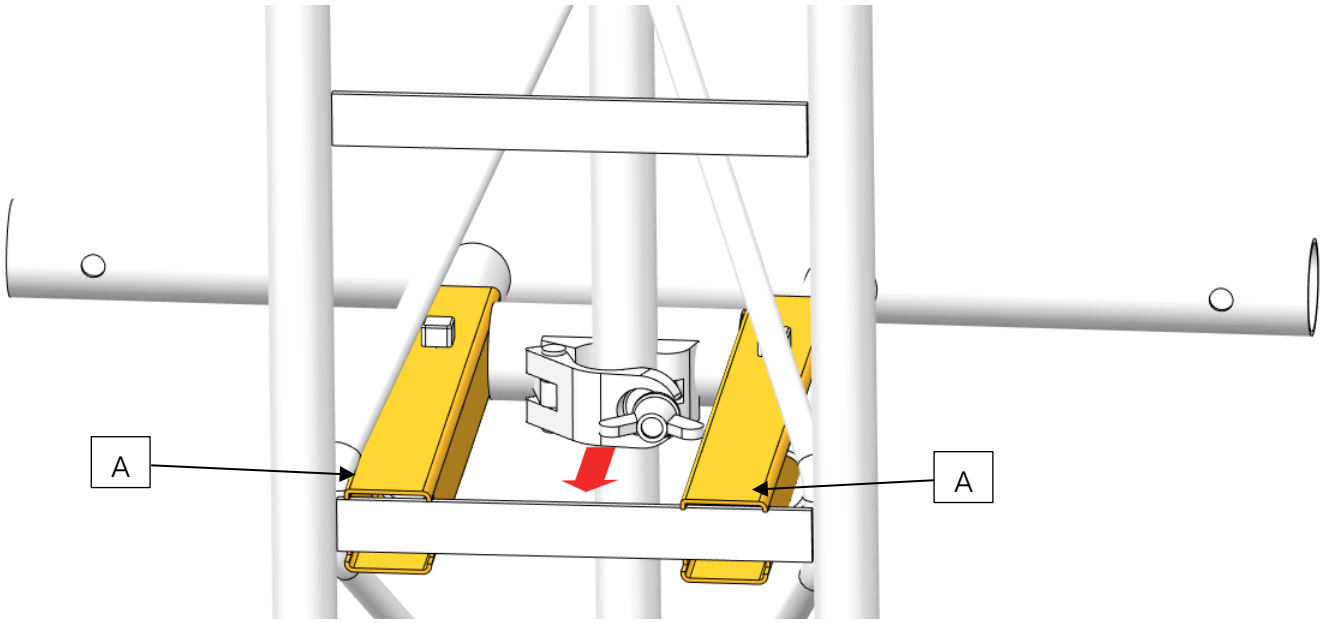


① Using the pin, adjust the length of the strut so that it is practically the length of the window.

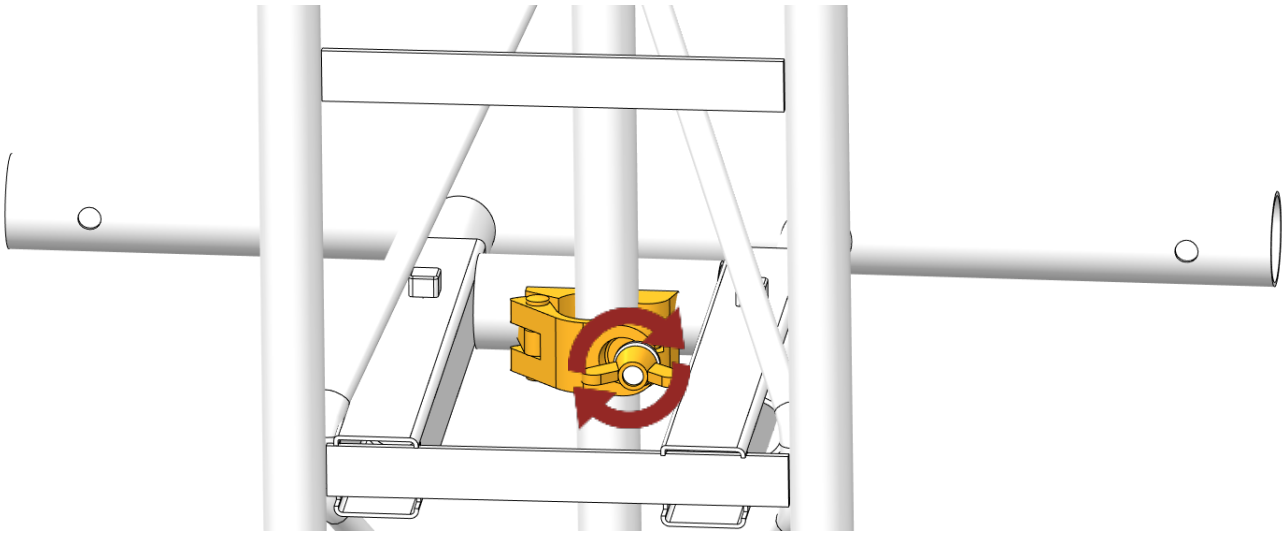
② Fasten it to the window frame by turning the end of the strut.

Simple adjustable supports 05011909:

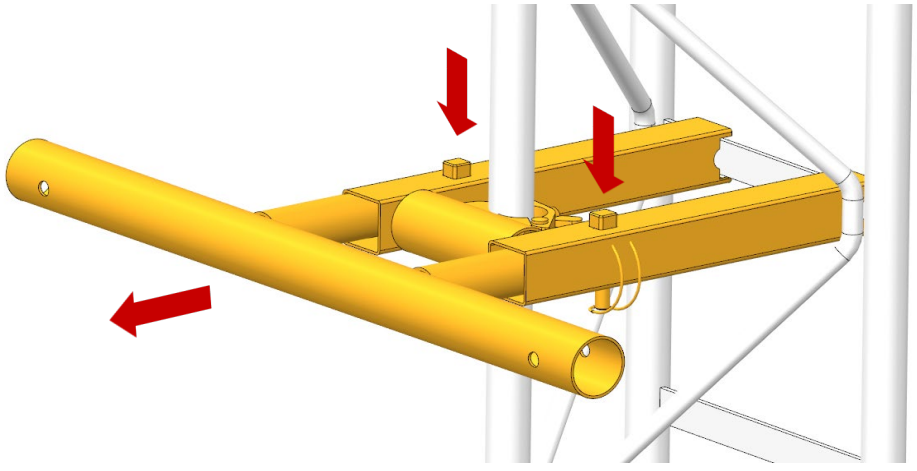
① Place ends A under the rungs of the ladder.



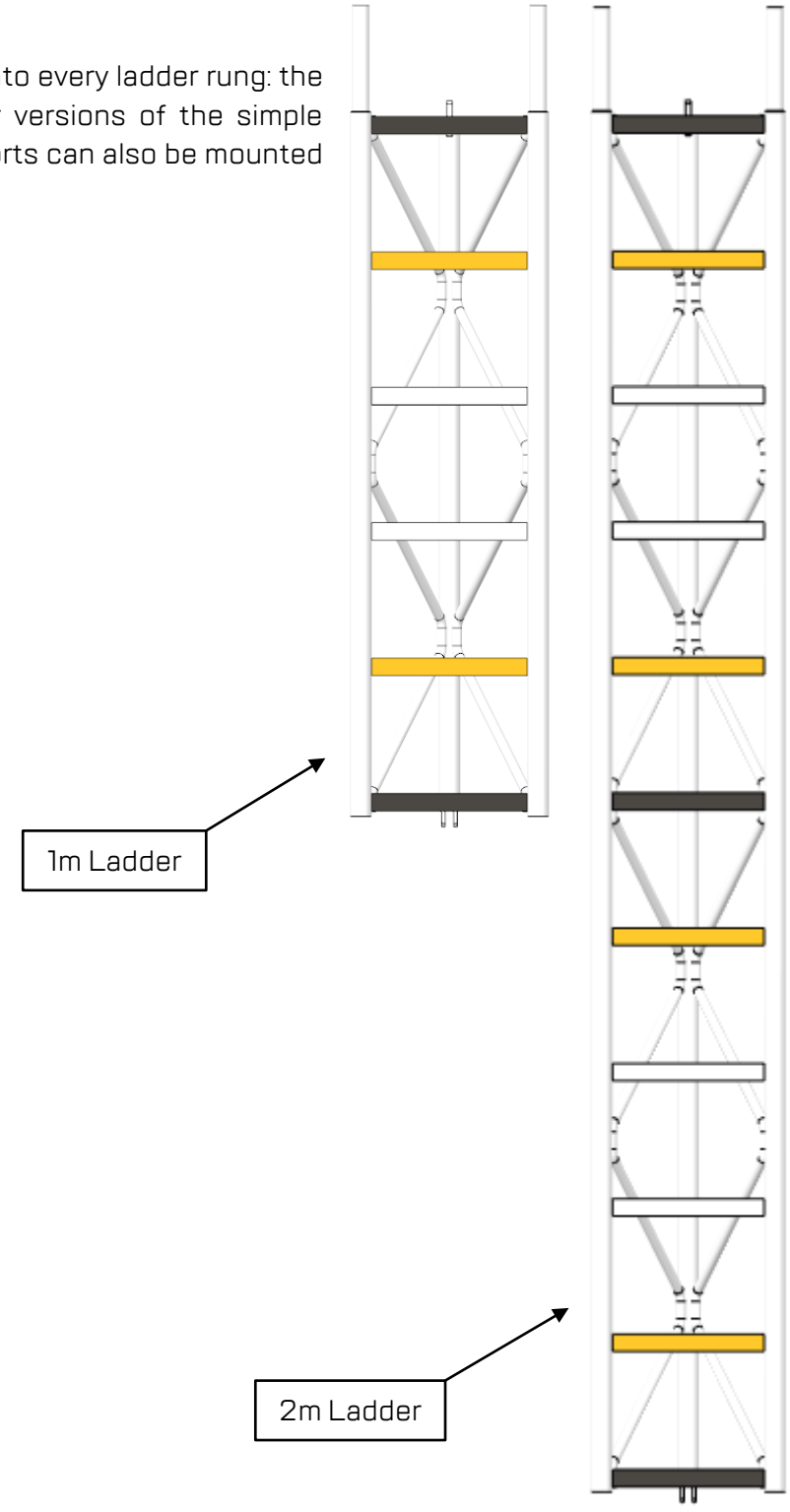
② Fasten the clamp onto the lower ladder tube.



③ Adjust the height of the support and then pin in position.



④ It is not possible to mount simple supports onto every ladder rung: the rungs which are compatible for mounting older versions of the simple support are shown in light grey; from 2019, supports can also be mounted on the yellow rungs.

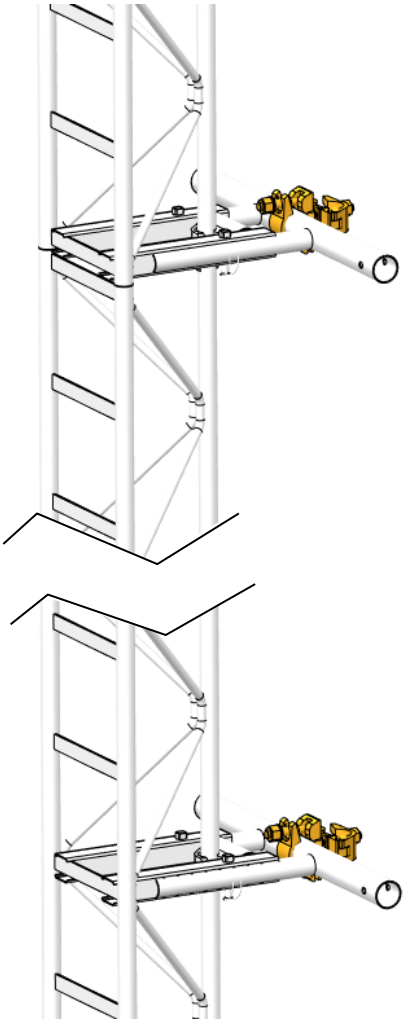


3. Dismantling

To dismantle the machine, follow the assembly instructions in reverse order.

4. Vertical Assembly

The ladder lift can be installed onto scaffolding by using RCM 230 double clamps every 4 metres. The trolley should be positioned parallel to the façade.



It can also be mounted directly onto a window using the attachment strut and at least two RCM 230 double collars every 4 metres.

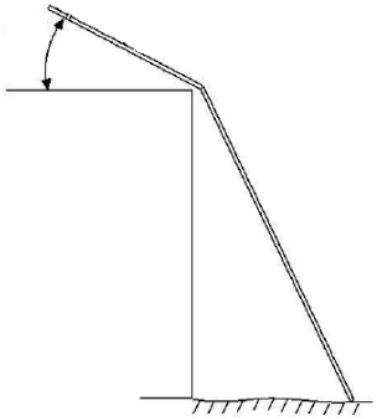
See diagram on page 11.

W \ D	≤2m	≤4m	≤6m	≤8m	≤10m	≤12m	≤14m	≤16m	≤20m
45° ≤ W ≤ 75°	0	1	1	2	3	3	3		
75° ≤ W ≤ 90°	0	0	1	1	1	2	2	3	
W = 90°	0	0	1	1	2	2	3	3	4

5. Mounting accessories

Ladder lift accessories increase the wind loading of the machine.

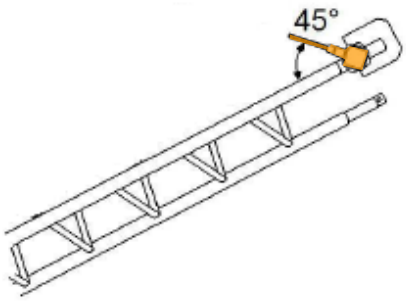
5.1. Free-standing concrete skip 60L or 120kg (5011901)



① Rigging limitations to ensure correct skip tipping:

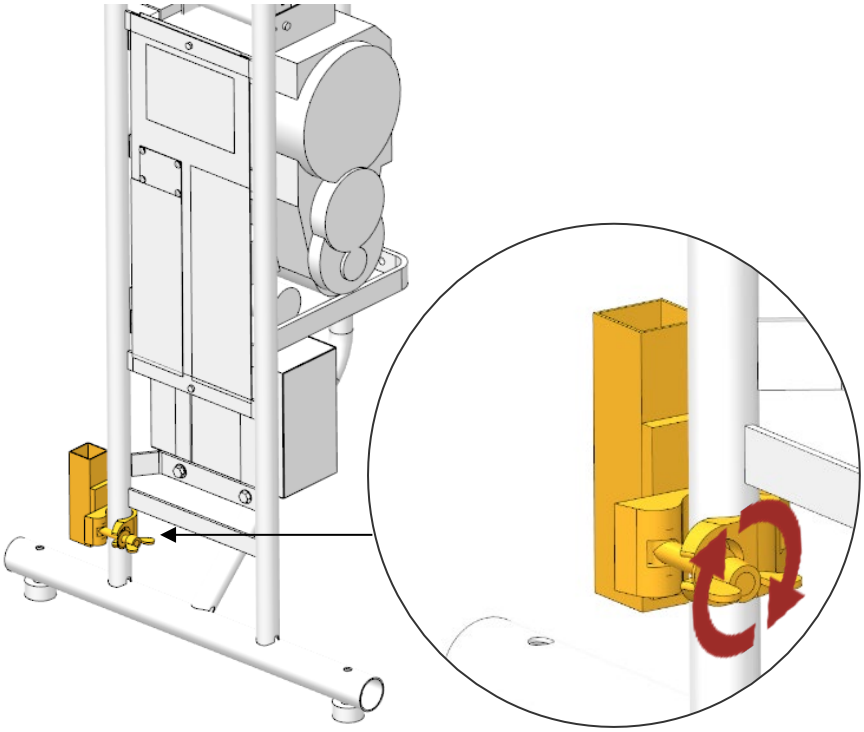
· The extension angle should be between 30° and 35°.

· The bend section must be used.



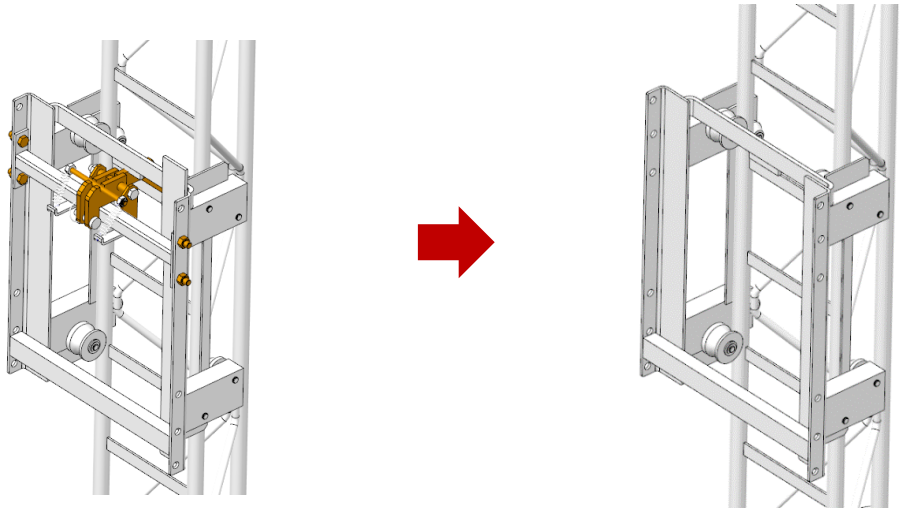
② Attach the top limit switch. It should be angled at 45° relative to the ladder. The mounting bracket rests against the crosspiece of the head section.

③ Fit the stop for the bottom limit switch on the left upright of the winch assembly or on the upright of a ladder. Choose the stop height position according to the required low position for the trolley. Place a wing nut facing in towards the winch and then tighten by hand.

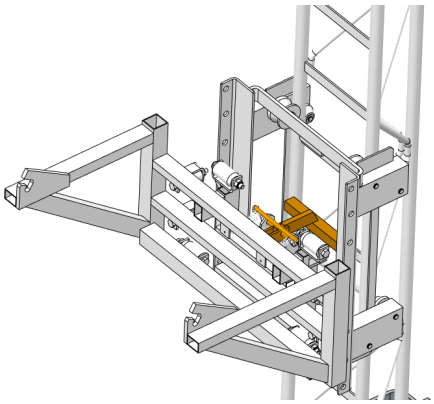


④ Using the remote control, lower the trolley until it is in contact with the bottom limit stop. Then unhook the cable from the parachute device.

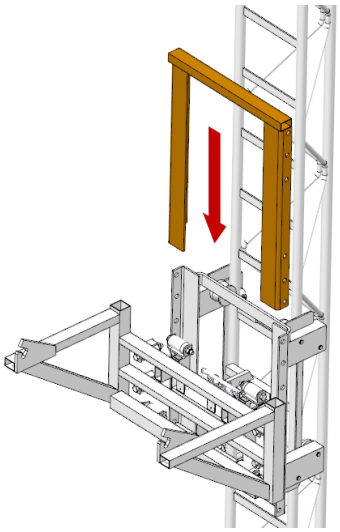
⑤ Remove the parachute device from the trolley by unscrewing the four screws.



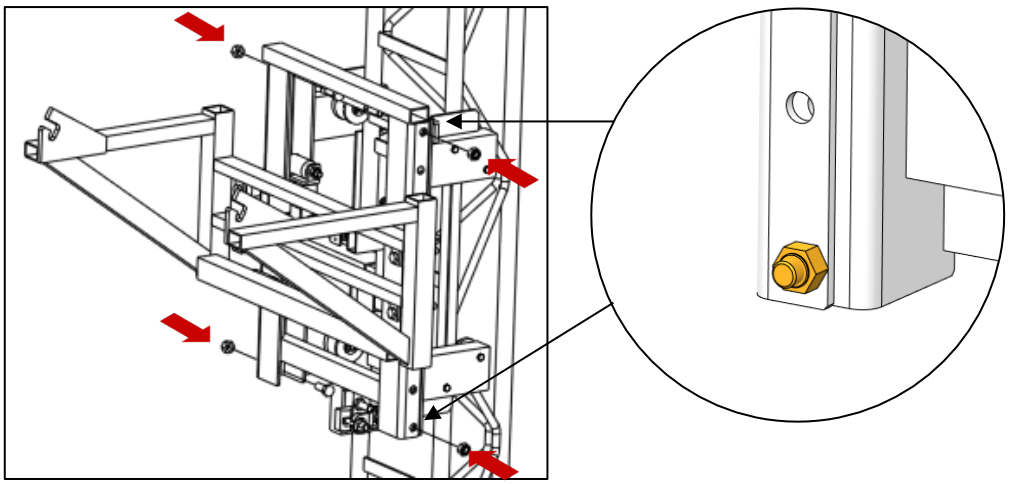
⑥ Pin the cable to the parachute device on the “half-trolley” assembly.

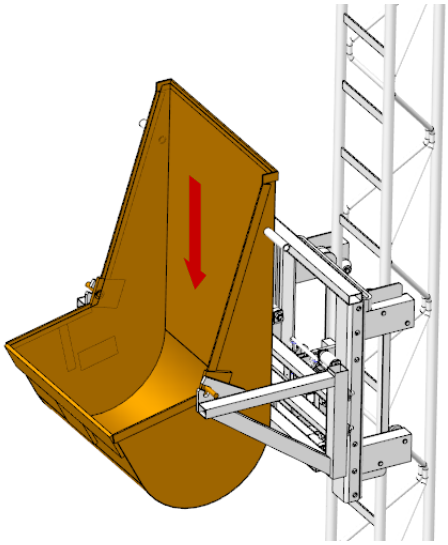


⑦ Place the frame between the “trolley” and the “half-trolley” by sliding it down from above.



⑧ Secure the frame to the trolley by re-using the screws which had been taken out beforehand. Position the screw heads inside the trolley. Screw the nuts until they are in contact with the outside of the frame, **but do not tighten them.**

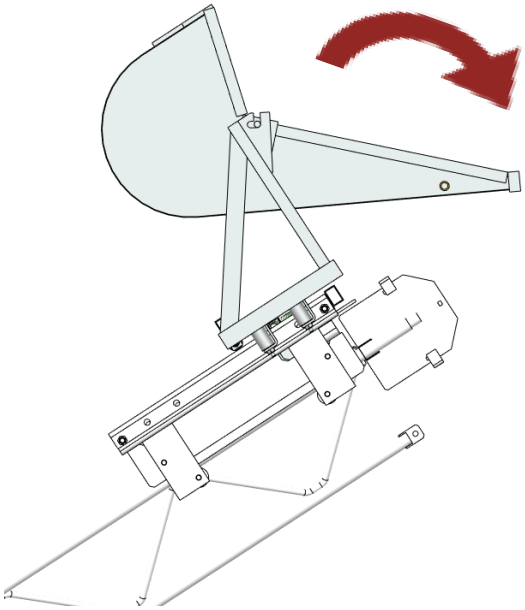




⑨ Attach the skip to the assembly. Once the skip has been loaded, it will automatically stay in a vertical position.

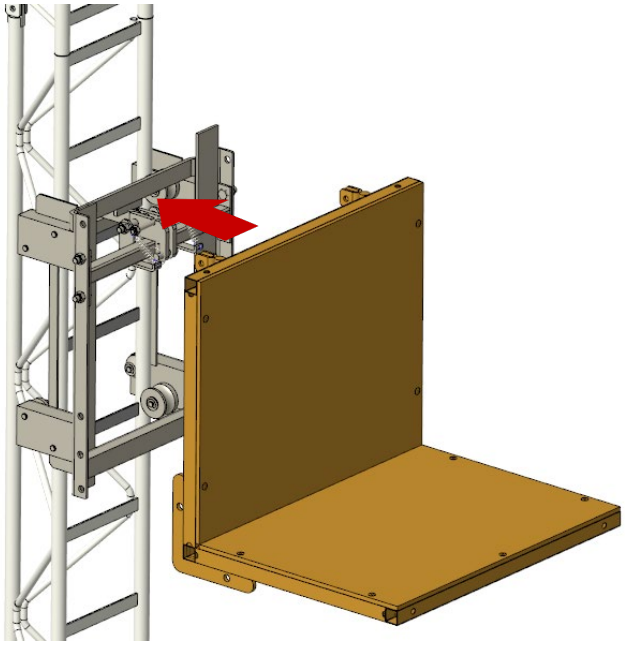
⑩ Activate the "up" motion. The pull from the cable will make the "half-trolley" slide onto the "trolley" until it comes to a stop and drags the whole assembly onto the ladder uprights. Continue moving the assembly up until it reaches the desired height.

⑪ Once it has reached the top, the top limit switch will stop the winch. Using the handles, the user can then easily tip out the contents of the skip.

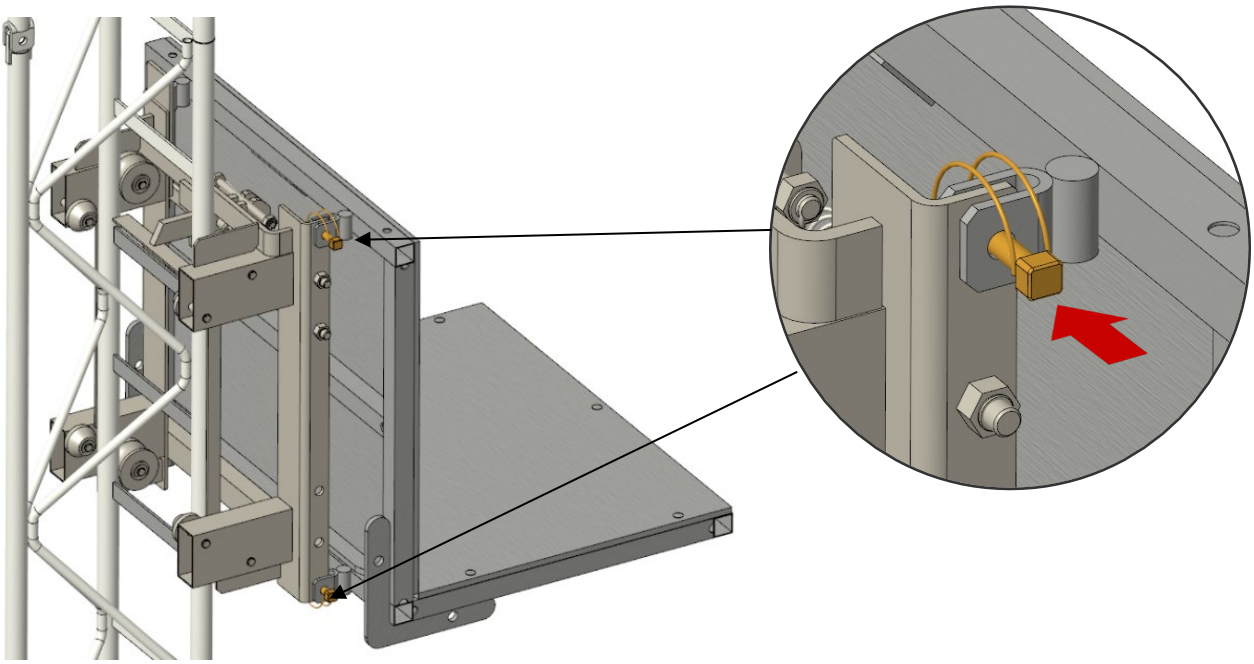


5.2. Material carrier (5011915)

① Position the universal platform by aligning the holes in the trolley mounting lugs with the "U" shaped fitting of the universal platform.



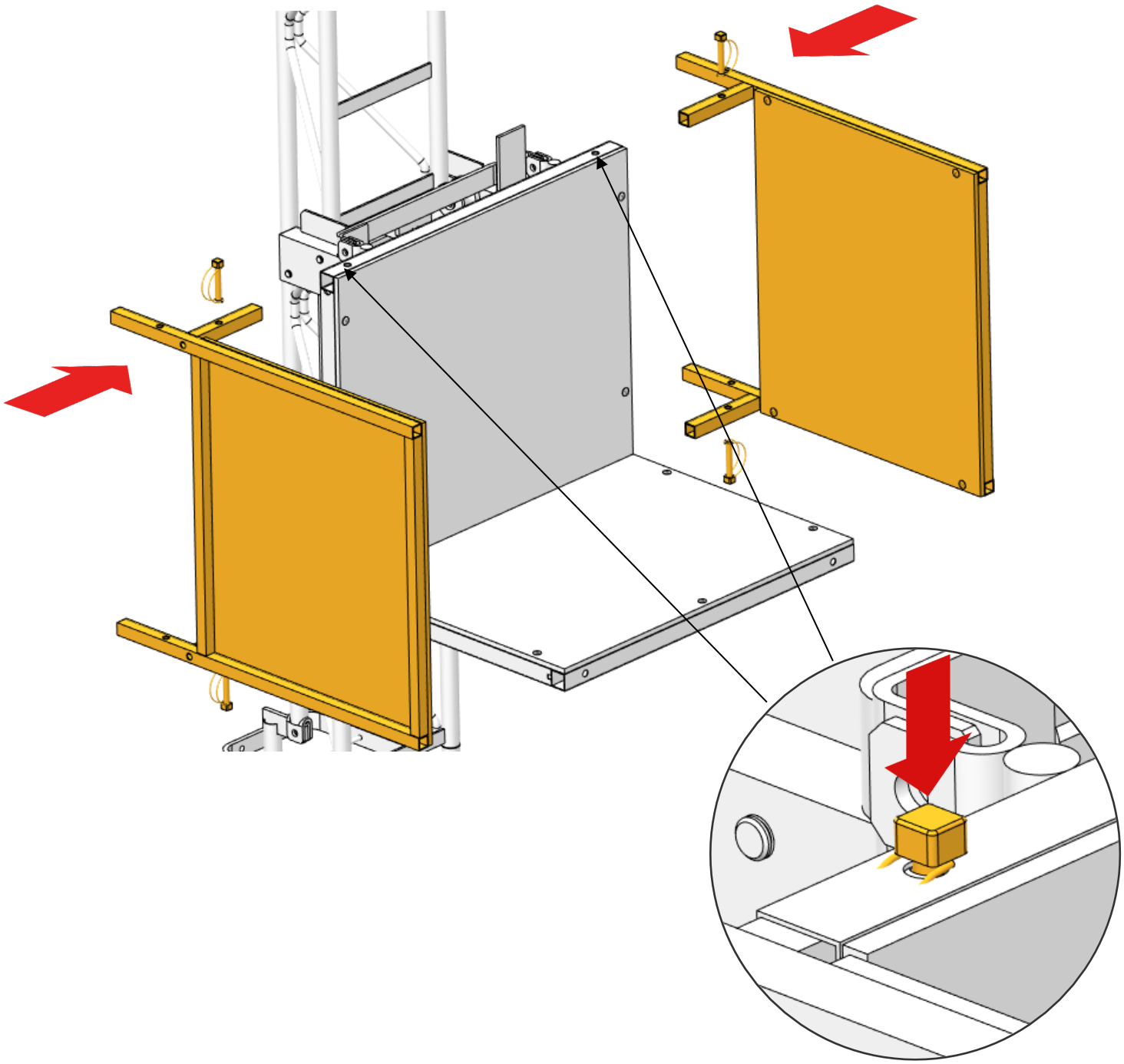
② Lock the universal platform in place by ensuring that the four pins are correctly positioned.



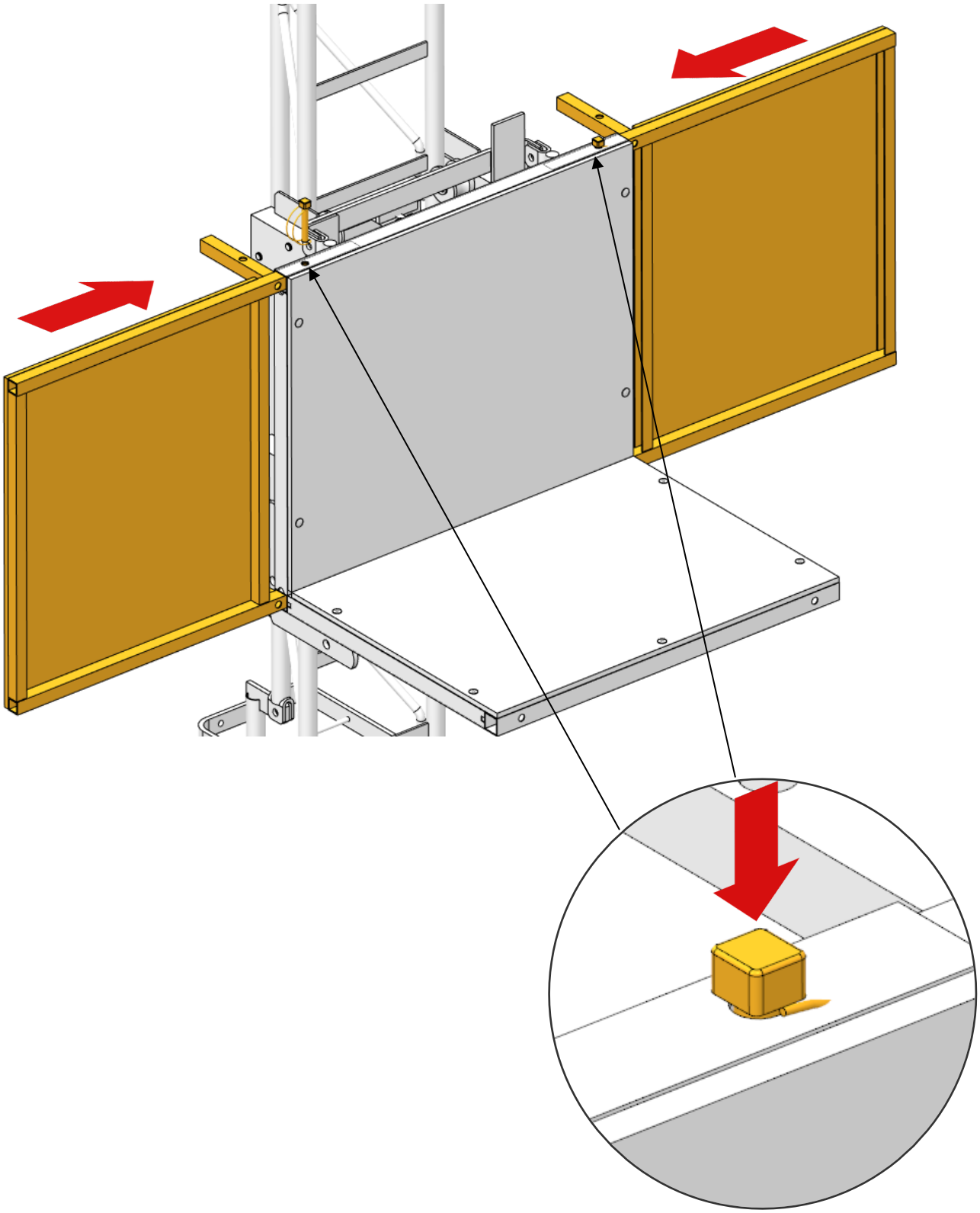
5.3. Attachable side panels (32708)

The attachable side panels can be mounted in two different positions depending on user requirements. They should be locked in place with pins (80466).

Position 1: Tiles, rubble, tools...

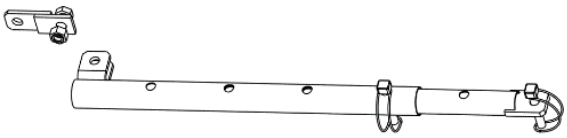


Position 2: hollow bricks, rolls, planks...

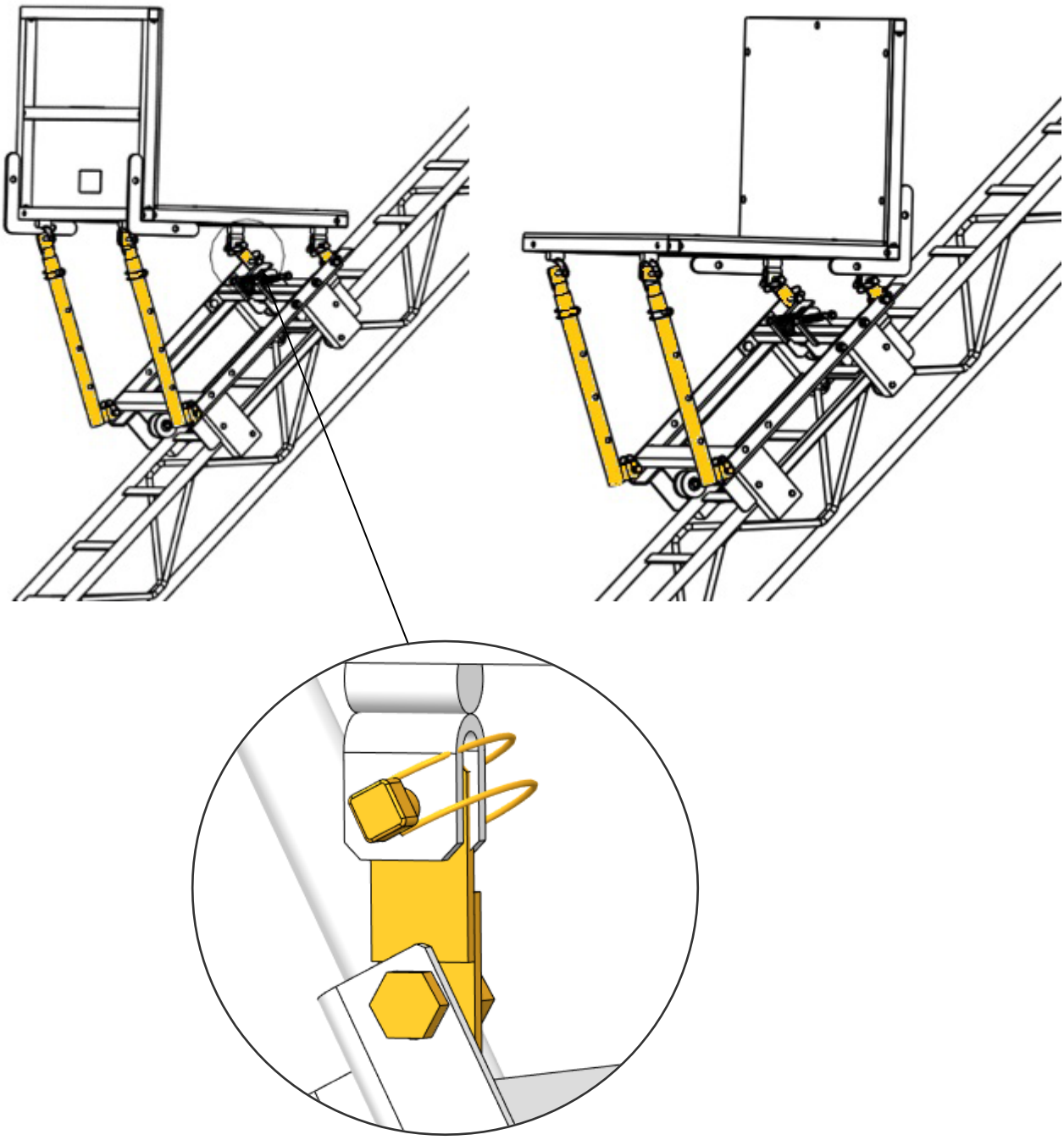


5.4. Tilt adjuster (33951)

The tilt adjusters ensure that the transport platform is always horizontal despite the angle at which the ladders are inclined. There should be two tilt adjusters.

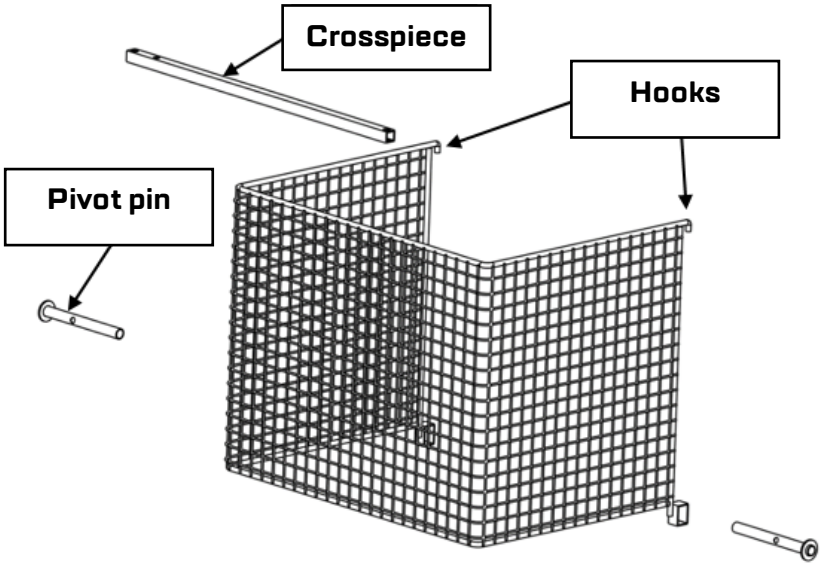


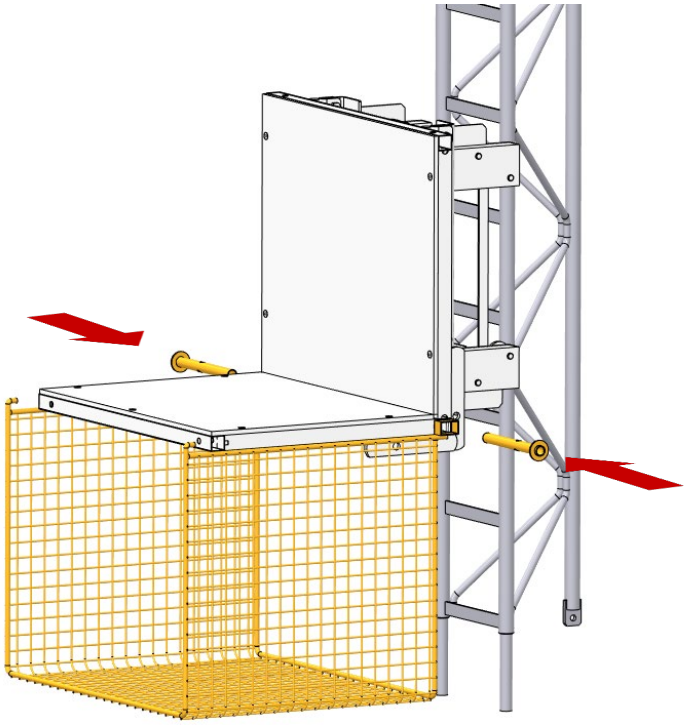
The diagrams below show the two ways of mounting them depending on requirements:

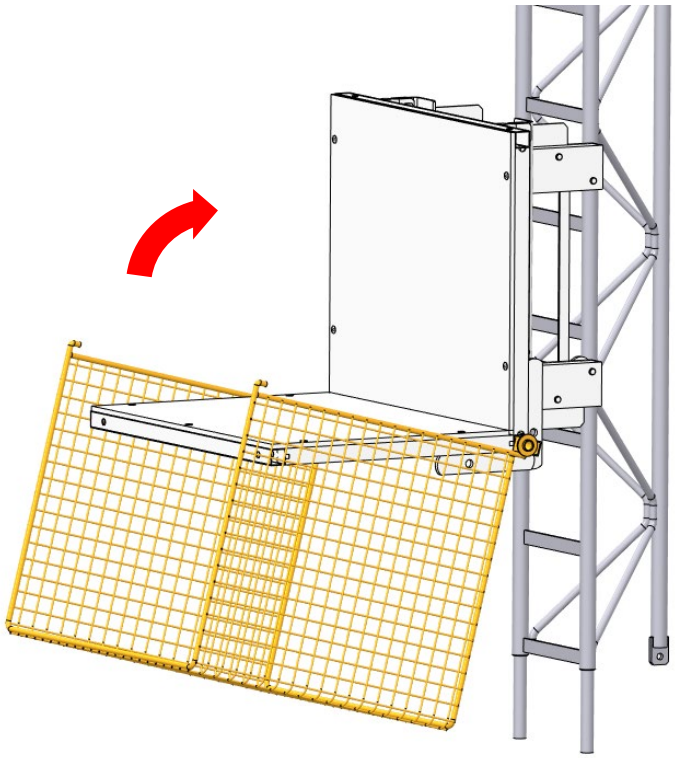


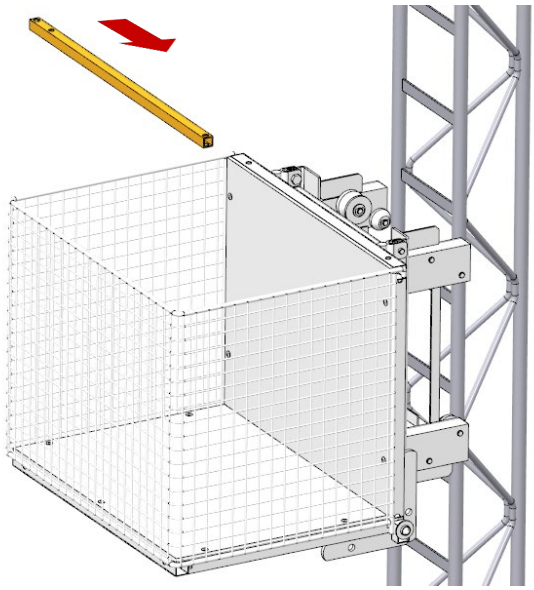
5.5.Tile carrier (32863)

① Place the tile carrier under the material carrier so that the two tile carrier pivot pins and the crosspiece can be inserted into the material carrier frame.

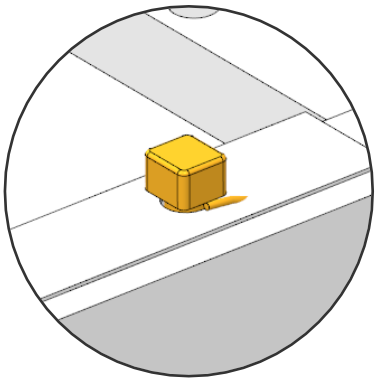




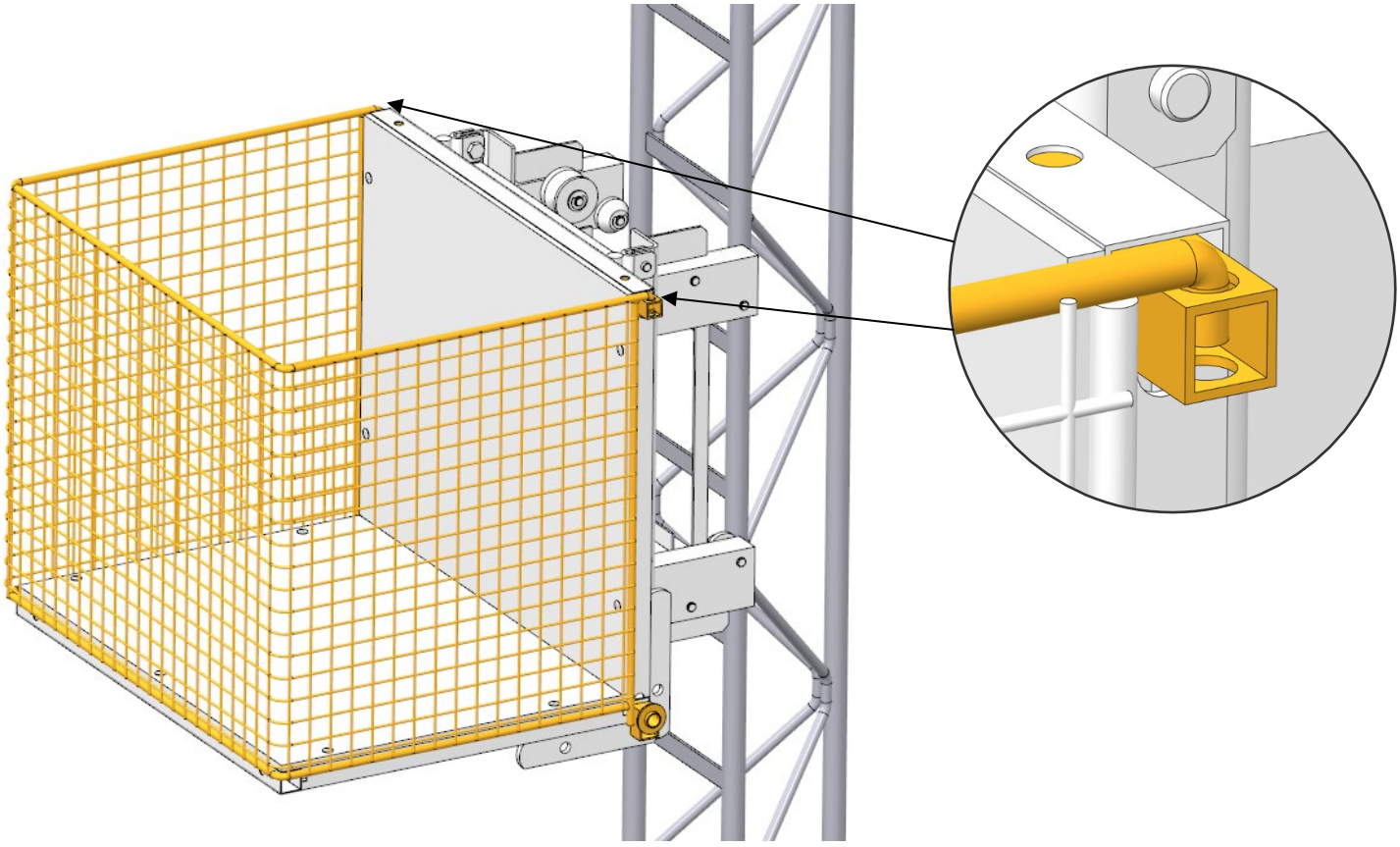




② Pin the crosspiece to the trolley using a pin. (80466).

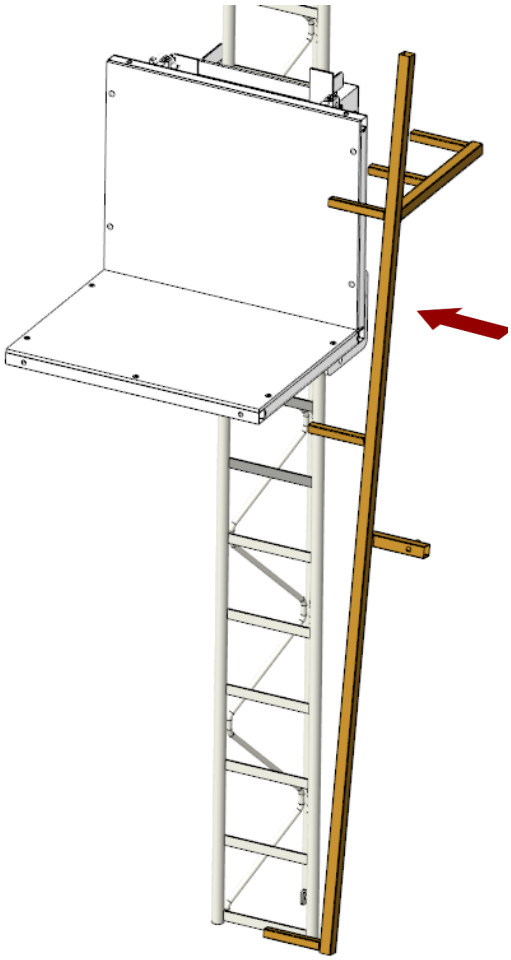


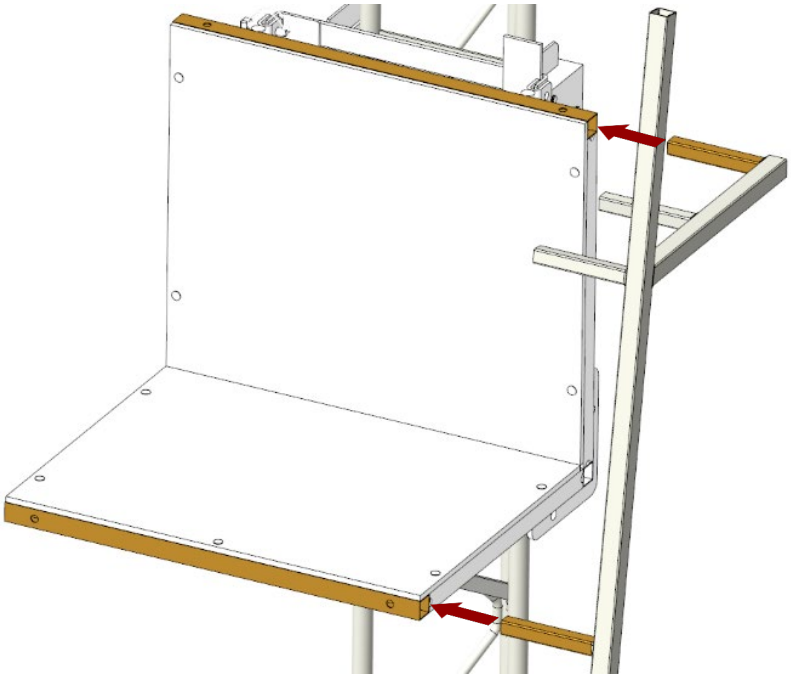
③ Once the tile carrier has been attached, pivot it onto the material carrier and then lock it in place by attaching the two hooks to the crosspiece.

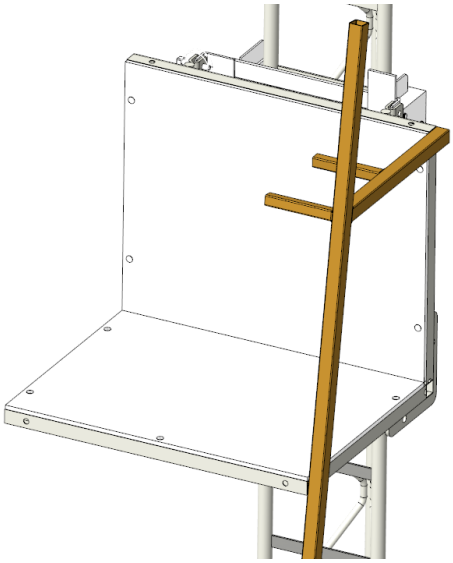


5.6. Panel carrier (32796)

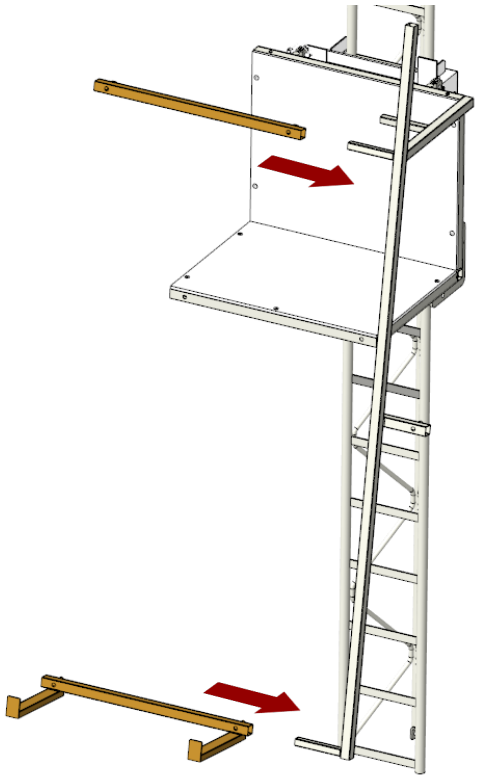
① Place the right-hand-side panel carrier (32741) to the right of the material carrier, and then insert the tubes into the carrier frame as shown below.





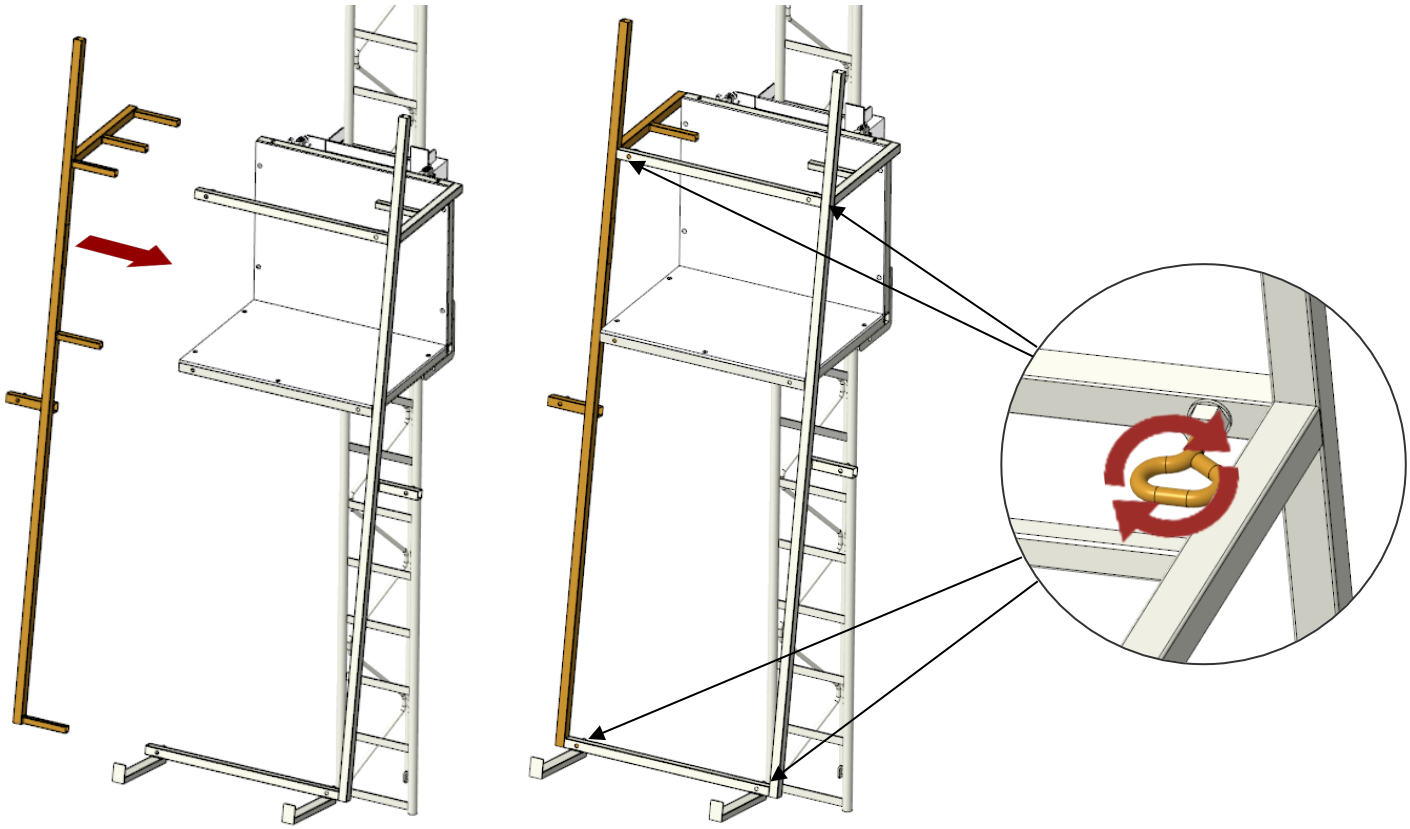


② Insert the top panel carrier attachment (87025) by positioning the welded nuts facing towards the back of the material carrier. Follow the same steps to attach the bottom panel carrier attachment (87137).

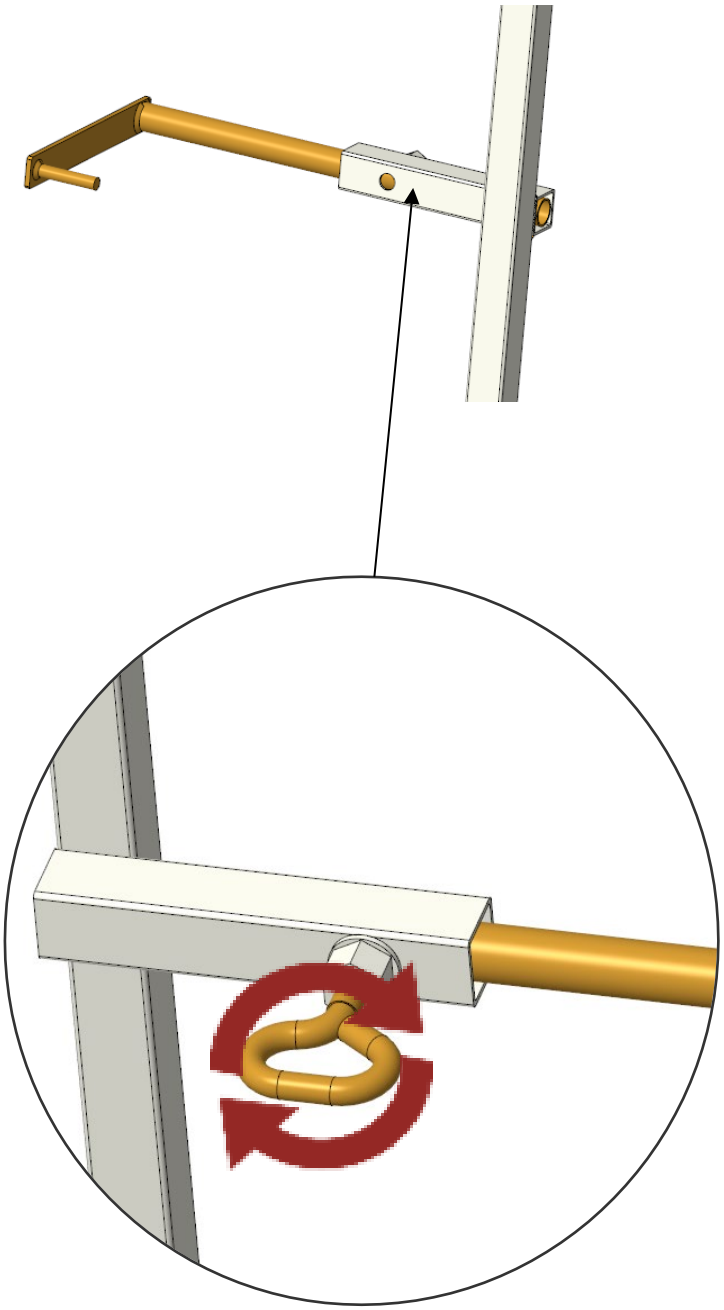


③ Place the left-hand-side panel carrier (32710) to the left of the material carrier so that the tubes can be inserted into the carrier frame and the top and bottom attachments, as shown below.

Tighten the 4 M12 oval head screws to secure the structure.



④ Insert the panel carrier stops (87011) on both sides of the structure. Then tighten the 2 M12 oval head screws to lock the components in place.



The maximum load should not exceed 150kg.

Chapter 9: Before use

After each assembly and before use, it is mandatory to:

- Check the general condition of the winch and the cable.
- Check that the cable is wound correctly (turns which are parallel and not crossed).
- Check the condition of the trolley rollers.
- Check that the parachute device is working correctly.
- Check that all ladder locking pins are in place.
- Check the roof supports.
- Check that the machine is securely anchored down.
- Carry out a no-load test to test the limit switches (top and bottom) and the trolley rails.
- Carry out a load test over 1 metre to check that the brake is operating correctly.
- Verify the condition of the ladders. If a ladder has been damaged during transport or after the parachute device has been triggered, it should be replaced immediately and not used again under any circumstances.

Before using the machine for the first time, and in addition to the checkpoints listed above, it is necessary to:

- Verify that the winch brake holds by applying a coefficient of 1.25 to the maximum load.
- Verify that the parachute device operates correctly by applying a coefficient of 1.1 to the maximum load.

Chapter 10: Upkeep and maintenance

The site manager should set up a maintenance logbook and keep it up to date (Art. R233-12 of the Labour Code) conforming to the Order of 2nd March 2004 regarding lifting machine maintenance logbooks.

All damaged components, even ones that are slightly damaged, should be replaced. Only original replacement parts should be used to ensure that the machine functions correctly and the TUBESCA-COMABI guarantee remains valid.

1. Cable

To avoid premature wear of the cable, ensure that it is correctly wound onto the drum. If necessary, unwind it and wind it up again correctly.

The cable should be checked each time before the machine is used; identifying one or two of the defects below requires the immediate removal and scrapping of the cable:

· A broken strand.

· The presence of a kink, a bend, a flattened cable, protruding wires, loosened strands, or a "basket" defect.

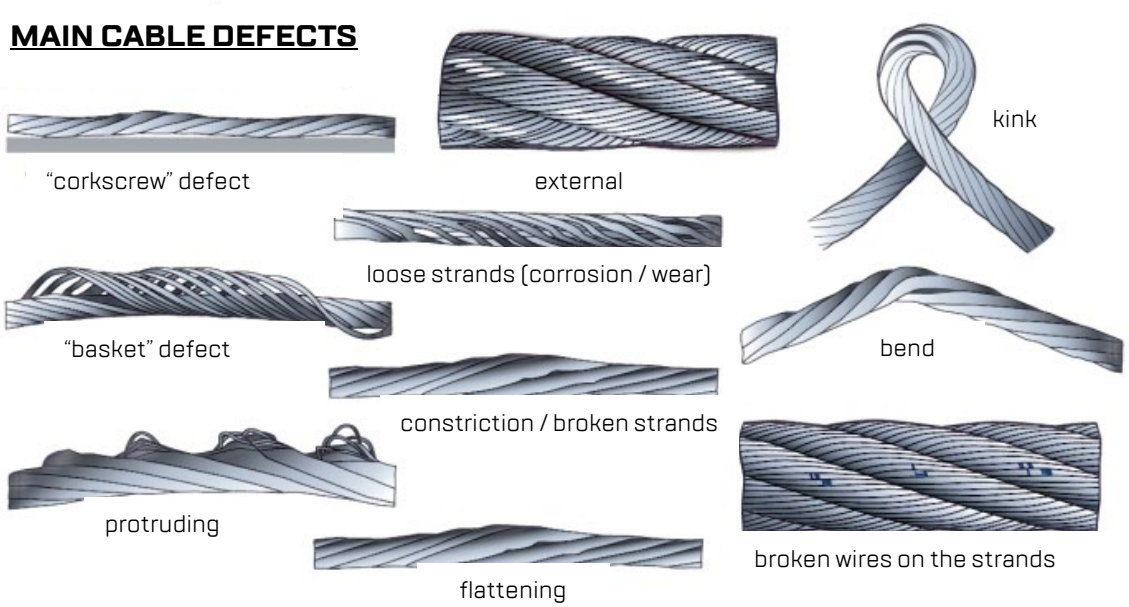
· An abnormal and localised reduction in diameter: when the reduction in stranded wire cable diameter reaches 10% at any point.

· When the number of visible broken wires reaches 20% of the total number of cable wires.

· When the reduction of the measured strand section on a turn of the cabling reaches 40% of the total section of the strand.

· When it is worn to such an extent that flat spots on the external wires are joined together.

If the cable wire breaks while under load, the parachute device will stop the trolley. It will then be necessary to unload the trolley, check that no component has been damaged and change the cable.



2. Rollers

The rollers should be checked each time before the machine is used. There should be no cracks on the rollers. Scratches should not prevent the rollers operating correctly. A defective roller should be replaced.

3. Springs

The parachute device springs, and cable slack springs are safety devices and should be inspected before each use. There should be no deformation of the coil. If in doubt, change the springs.

4. Trolley parachute device

Clean and grease the trolley parachute device every day. Check that it is operating correctly before each use.

Chapter 11: Operating malfunctions

The trolley does not come back down, or the parachute device locks, verify:

- That the ladder section after the bend section is at a minimum incline of 25°.
- The operation and condition of the rollers.
- The condition of the ladders.
- That the cable slack system has not been triggered.
- That the plug for the remote control is connected.
- The fuse in the electrical box (or the circuit breaker).

The trolley does not lift the load or the winch does not start, verify:

- That the power connection meets the requirements for the winch.
- That the top limit switch is not open-circuit and is functioning correctly.
- That plug for the remote control is connected.
- The fuse in the electrical box (or the circuit breaker).

The machine is working but not at full power, verify:

- The actual weight of the load.
- The cross-section of the power supply cable.

Abnormal heating of the motor, or frequent triggering of the circuit breaker or fuse:

- The winch is overloaded.
- Duty cycle 50%.

In the event of an accident or breakdown:

- If possible, unload the machine.
- If possible, give some slack to the cable so that the parachute device is triggered.
- Dismantle the machine.

If the machine still does not operate correctly after all these checks, contact the TUBESCA-COMABI After Sales Service.

Chapter 12: Guarantee

The guarantee is effective from the date of invoice by TUBESCA-COMABI or by its DISTRIBUTOR.
Our guarantee is subject to the purchaser fulfilling their contractual obligations, especially payment. The guarantee is limited to factory replacement or repair of original TUBESCA-COMABI parts which have been identified as defective following our inspection. All further claims are excluded. More specifically, applying the guarantee will in no way result in the payment of damages. This guarantee only applies to products which have been installed and used in accordance with the installation and operation instructions in the technical manual.

Keep your proof of purchase (invoice or delivery note) in a safe place as you will be asked for it in order to apply the guarantee.

Chapter 13: User obligations

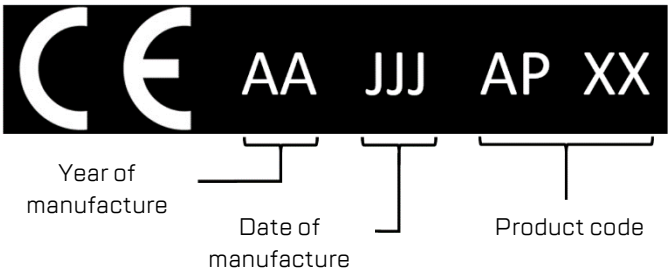
The user should:

- Fulfil their obligations with regards to keeping people safe.
- Carry out inspections according to the national legislation which applies to the use of lifting equipment (France, Order of 1st March 2004 regarding the inspection of lifting equipment and accessories. Inspections should take place when the machine is commissioned, each time it is put back into operation, and with periodic general inspections every 6 months).
- Keep a maintenance logbook (France, Order of 2nd March 2004, cf§10).
- Keep an up-to-date safety register (R4321-1 from the Labour Code).
- When the machine is not being used, lock off the power supply and protect sensitive components from bad weather (rain, frost...).
- When modifying or extending the machine, or relocating it to a different site..., follow the instructions to dismantle it, shut down the power supply and ensure environmental compliance.
- Inspect the condition of each component, especially welds, every time the machine is assembled or dismantled.
- Put the machine out of action (and possibly dismantle it) when it reaches a state of disrepair which may cause risks.
- Ensure that a professional disposes of the machine.

Chapter 14: Marking

· All ladder lift components are factory-controlled to guarantee manufacturing quality.

· The most important components have a CE mark to certify that they have been inspected, for example:



Code	Name	Mark Position
106-A002730050	2m Ladder	Rung
106-A002730550	1m Ladder	Rung
106-A501192350	Apache base	Horizontal plate
106-A002732050	High bend section	Horizontal plate
106-A002732550	Low bend section	Horizontal plate
106-A003390250	Trolley	Roller mounting

Chapter 15: EC declaration of conformity template

Manufacturer: TUBESCA-COMABI BP 414 - 01604 TREVOUX- France

Declares that the machine referred to below as:

APACHE n°5 Ladder Lift

· Conforms to the provisions in the following European directive and the national laws transposing that directive:

Machinery Directive 2006/42/EC

· Should be used in accordance with the instructions in reference manual 106-A000033963 ind. AE 01/02/2022, particularly those relating to site installation and using the accessories described in the manual.

NAME:

QUALITY VALIDATION:

At: TREVOUX Date:

SIGNATURE:

Chapter 16: Maintenance logbook

Date	Nature of maintenance required and carried out	Name and signature of the person in charge of maintenance	Name and signature of the person using the machine	Name and signature of the supervisor