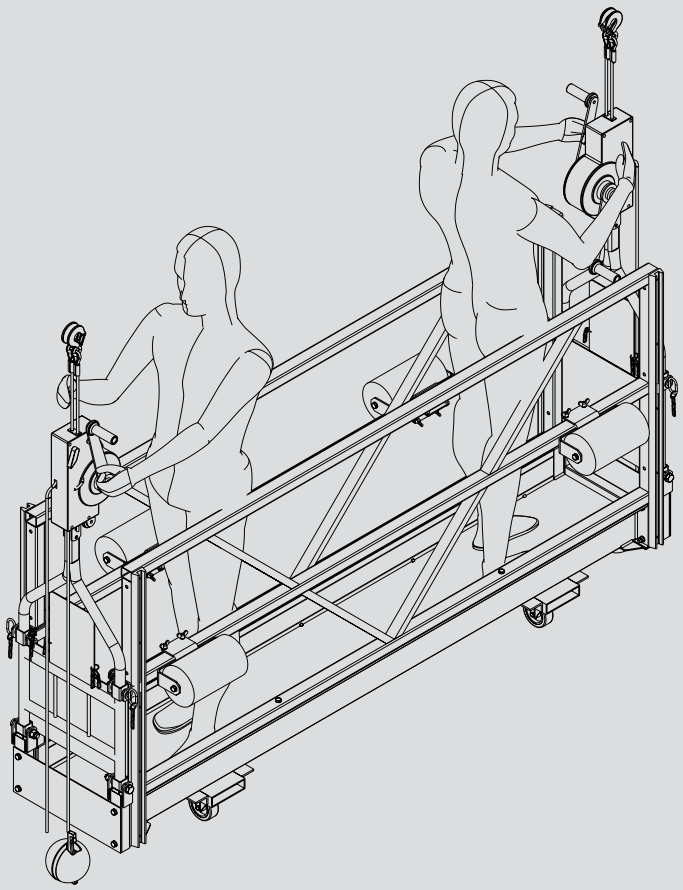
Original Operating Instructions

Volvo Wind Tunnel, Sweden



Temporary ALTA “L” cradle without suspension

Building Maintenance Unit (BMU) | for maintenance works

CE

www.tractel.com

TRACTEL® Operating Instructions
CU42865-ALTA L(CE)-ssSusp-7EN

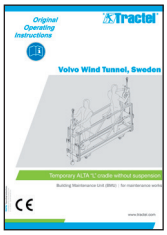
Technical documentation

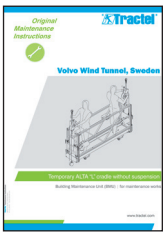
VOLUME 1

- Operating instructions

VOLUME 2

- Maintenance instructions
- Quality control report
- Electrical wiring diagram





Structure of technical documentation

Volume 1
Operating instructions
Table of Contents

Manufacturer's address

Tractel Secalt S.A.
12, rue de l'Industrie • L-3895 Foetz
P.O. Box 75 • L-4001 Esch-sur-Alzette
Phone (352) 43 42 42-1
Fax (352) 43 42 42-200
www.tractel.com

A TRACTEL® Group Company

Symbols used in this manual

DANGER

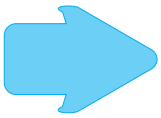
Danger of fatal, serious or light physical injury or of damages to the environment if safety instructions are not observed.

CAUTION

Risk of damage to equipment if safety instructions are not observed.

IMPORTANT

Important instruction for efficient and reliable use of equipment.



Reference to another chapter.

Remark relative to regulations or standards.

The information given in this manual refers to various types of equipment and describes component parts, including special accessories and auxiliary functions. Certain information describing component parts and/or functions may therefore not apply to your installation.

A. SAFETY INSTRUCTIONS

A.1. For whom this document is intended

This user manual forms the first part of the technical documentation and is intended for operators employed to use this building maintenance unit (BMU, designated “equipment” in the manual).

Before using the equipment, you must become fully familiar with the information contained in this manual and observe all safety instructions to ensure safe, efficient use of your equipment.

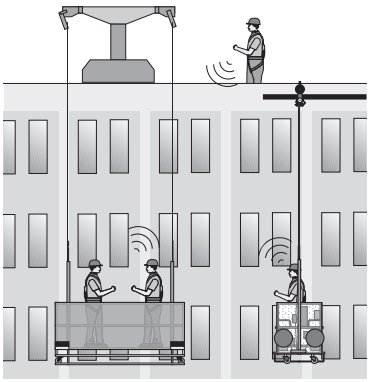
The user manual is an integral part of the equipment and must be available at all times to the operator. In case of loss or deterioration of the manual, an additional copy will be supplied on request.

A.2. Use the equipment for its intended purpose only

The equipment is intended for maintenance of building facades as described in section B.2. Tractel Secalt S.A. declines any responsibility for damage resulting from use of the equipment for anything other than its intended purpose.
The equipment is designed for the Working Load Limit (WLL) indicated on the nameplates.

A.3. Building owner obligations

Ensure that all persons employed to use the equipment are properly trained and physically able to meet the safety requirements involved in use of the equipment.
The building owner must define the equipment utilization conditions to prevent that any equipment users remain captive in the cradle should a fault occur (power outage, equipment fault, etc.).



Possible solutions:

a) **Always have one person on the roof, or perform periodic checks.**
b) **Equip users with walkie-talkies or mobile telephones.**

The rescue personnel must be regularly trained for rescue operations.

L E X

Ensure that all safety at work regulations are applied, in particular, as concerns checks and tests before using the equipment.

The checks prior to initial operation must be carried out according to the European standard EN 1808!

DANGER

Ensure the equipment is used for its intended purpose only

Communicate with operators

IMPORTANT

DANGER

Observe all work safety regulations

Never use an equipment which is not in good apparent condition.

Eliminate any damaged suspension wire ropes or accessories used with the equipment. On-going monitoring on the condition of the equipment and its suspension wire ropes is a primary safety factor.

DANGER

Always monitor the condition of your equipment.

Risk of falling!
The parking position of the equipment and the conditions for access to cradle must be defined by the building owner.
The building owner is responsible for the safety of the personnel climbing into the cradle or leaving the cradle.

DANGER

Refer to the appendix, too

The equipment is intended for use in lighted areas, whether naturally or artificially lit. When artificial lighting is used, the operator must be provided with sufficient lighting.

Risk of accident!
The equipment must always remain inaccessible to unauthorized personnel.

DANGER

The manufacturer declines any responsibility for the consequences of any disassembly or changes to the equipment which have not been authorized and monitored; this especially applies to replacement of original parts by parts from any other source. Any changes (mechanical or electrical) by the user releases the manufacturer of all responsibility and places the responsibility on the user. It is therefore prohibited to perform any installation or adjustments without explicit authorization.

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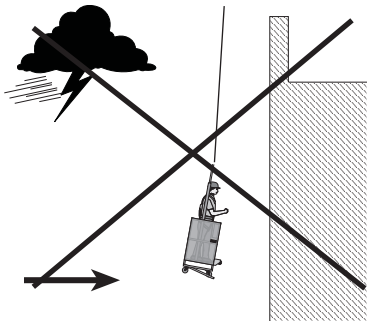
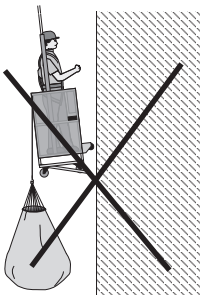
A.4. Do not use equipment under the following conditions

Operating limits



Risk of falling.
Never use the equipment under strong wind (greater than 45 km/h) or thunder storm conditions.



Do not use the equipment for handling.
Do not attach loads to the outside of the guard rail.

Do not modify the outline dimensions of the cradle.

Do not perform any welding work from the cradle.

Temperature limits

max + 50°C

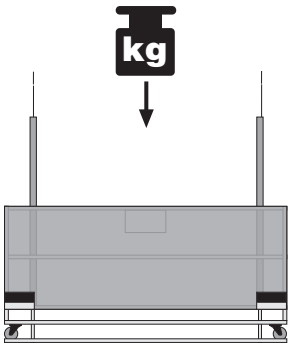
min -10°C
(option -20°C)

Option:
Winter kit for very cold regions ; the equipment automatically shuts down below –20°C.
Do not use the equipment when the temperature is beyond these limits.

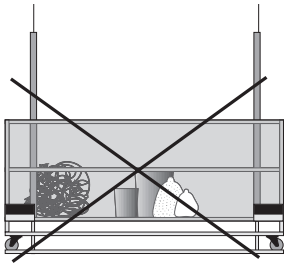
A.5. Operator obligations

Working height = Danger!
The user may sustain serious physical injury if instructions are not strictly followed.

DANGER



Never place a load in the cradle which exceeds the nominal load (see nameplate and inspection report).
Never exceed the number of persons indicated.



Do not allow waste or excess material to accumulate in the cradle.

The operator is entirely responsible for his actions.

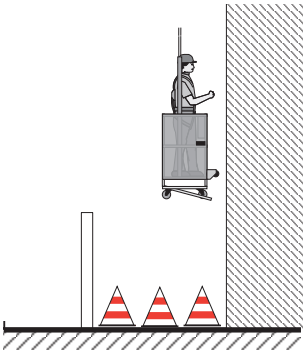
To avoid serious accidents, observe the specific safety instructions in chapter C.1.

Risk of serious injury or death!
Never modify or short-circuit a safety device.

DANGER

Risk of accident by falling objects!
Operators must always wear safety helmets.

DANGER

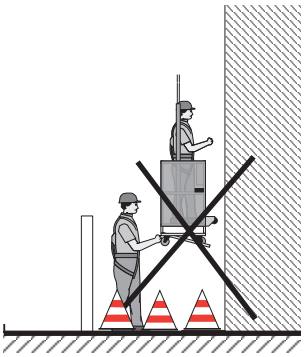


Barricade terraces and side walks located below working areas.

DANGER

DANGER

Avoid dangerous swinging!



Never climb into the cradle if it is not set on the ground.

At the end of work, always put the cradle in parking position.

B. DESCRIPTION OF EQUIPMENT

B.1. Technical specifications

See quality control report.

B.2. Main components

Cradle

Aluminum structure suspended by wire rope with on-board hoist(s).

Lifting mechanism

SCAFOR™ manual hoist equipped with a with fall-arrest system.

Suspension wire ropes

Galvanized steel wire ropes, one lifting wire rope (23) and one safety wire rope (24) per suspension point (certified by TRACTEL®).

Suspension point*

Monorail trolley (manually-operated or powered), roof-type BMU trolley (VENUS, VIPER or parapet trolley) or davit jib.

Note:
The cradle can be sold without suspension point. The instructions given in section C must be observed.

See figure in appendix.

For technical characteristics of wire ropes, refer to quality control report.

B

* Depending on the equipment

B.4. Safety devices

SCAFOR™ hoist

To ensure safe operation without danger to personnel, the platform is fitted with the following safety devices:

B.4.1. Service brake

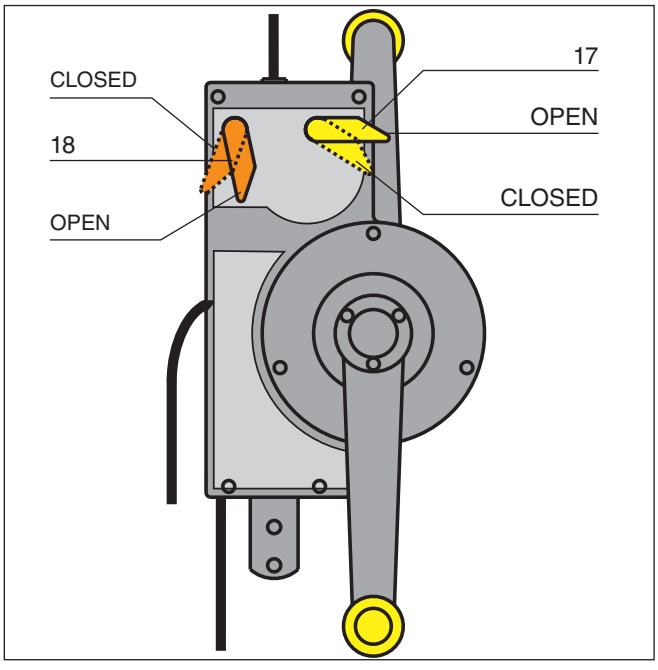
The SCAFOR™ hoist is equipped with a service brake which acts automatically as soon as the operator releases the crank handles.

B.4.2. Fall arrest device integrated in SCAFOR™

A fall arrest device is integrated in the SCAFOR™ hoist. Once triggered, a pair of jaws close on the safety wire rope.
In normal service, the jaws are maintained open: yellow lever (17) set to OPEN position.
The fall arrest device can be triggered in five ways:

a) manually, by pushing the red lever (18) toward the outside CLOSED position,
b) by rupture of the lifting wire rope; the fall arrest device is automatically triggered,
c) by failure of the hoist, creating an overspeed condition,
d) when the platform encounters an obstacle when moving downward, creating slack in the lifting wire rope,
e) when the platform flooring takes an inclination greater than 7° with respect to the horizontal.

For failures (a, b or c), an emergency procedure must be set up to evacuate the personnel on the platform.
For incident (d), the operator must tension the lifting wire rope concerned by turning the crank handles in the lifting direction. Once the platform has cleared the obstacle and the flooring is horizontal, turn the lever (17) to the OPEN position.
For incident (e), the operator must return the platform to the horizontal. To do so, the operator must turn the crank handles of the SCAFOR™ located on the lower side in the lifting direction. Once the flooring is horizontal again, turn the lever (17) to the OPEN position.



C. UTILIZATION

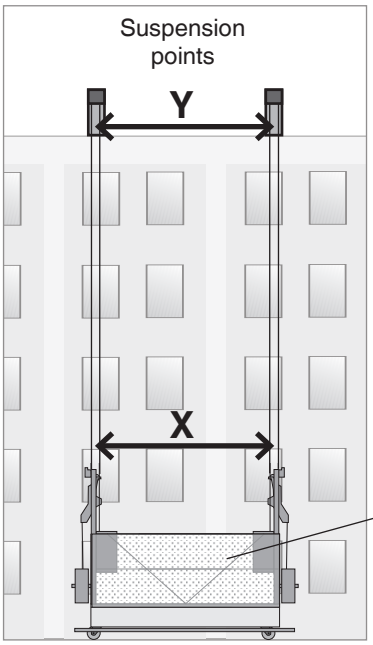
C.1. Safety instructions

Think SAFETY!

Only wire ropes specified by the TRACTEL Group should be used. These should be replaced if any fault is observed.

Risk of fatal fall!
Never use the cradle without the safety wire ropes!

The fall arrest devices are only effective provided the safety wire ropes are properly tensioned between the point of suspension and the counterweights suspended to the wire rope.



ALTA cradle:
Risk of serious accident!
The suspension points should always be aligned with the stirrup;
distance X = distance Y!

The operators must wear a hard hat if the site conditions require it.

Risk of injury!
Wear safety gloves!

In some countries it is mandatory to wear a harness when working in the cradle. Only attach lanyards to the designated anchor points (17.1) if provided. Never attach the lanyards to any other points in the cradle (e. g. guard-rail, stirrup, ...).

It is recommended that access to the area at ground level below the platform and which may be in line with any object, tool or material falling from the platform be prevented by being cordoned off. This recommendation becomes a requirement when the general public may have access to this area.

C

The equipment is intended for use in well lit areas either with natural or artificial light. Under artificial light the operator must have sufficient light.

When the work is completed, the competent person must have the platform taken out of service.

Preliminary checks

Ensure that the load on the platform does not exceed the rated capacity (safe working load = 240 kg) and that there is no accumulation of snow, ice, rubbish or excess of material on the platform.

The load must be spread as evenly as possible along the length of the platform.

Regularly check correct operation of the SCAFOR™ winches, brakes and fall arrest devices.

Check the safety of the suspension on the roof.

Check especially the anchoring and fixing of the suspension and secondary wire ropes.

Ensure that along the facade of the building there are no projections with which the platform may collide.

For platforms working at heights greater than 40 m, a guiding system must be used to limit lateral movement of the platform as a result of the wind.

C

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C.2. Commissioning

Two operators are required to set up the cradle.

Risk of falling!
The operators working on the roof must wear a safety harnesses and must be attached to a sufficiently-strong anchor point.

Risk of falling objects (wire ropes)!
Operators on the ground must wear a safety helmet.

Risk of injury!
Wear safety gloves!

Suspension made by another manufacturer

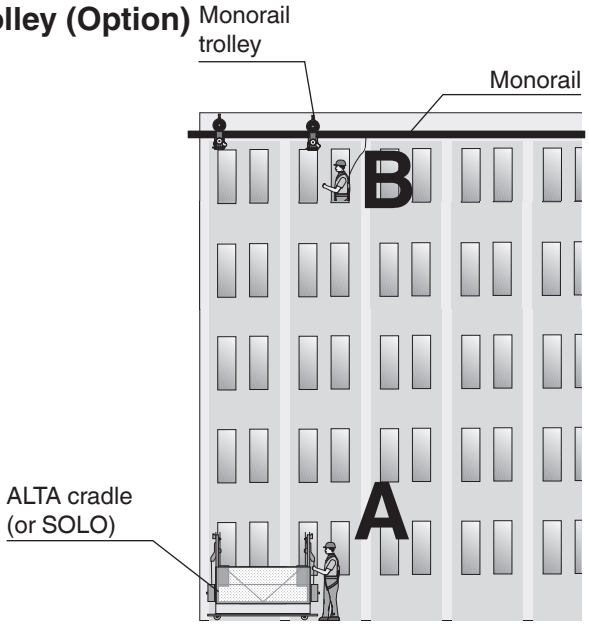
In case the cradle is used with a suspension (davit, monorail system, a. s. o.) coming from another manufacturer, the customer should ensure that the suspension point(s) is (are) sufficiently strong and conform to current regulations.

In case of a cradle sold without suspension a EC declaration of conformity comprising a note regarding the suspension points accompanies the cradle. The customer will carry out the procedure of EC declaration for the machinery set 'cradle + suspension'.

Suspension monorail trolley (Option)

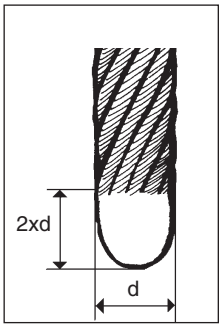
Ensure that the monorail trolleys are properly fixed.

OPERATOR A:
Bring the cradle directly into line with the suspension point(s).
To secure the suspension wire ropes, refer to the manual covering the suspensions.



For the installation of the monorail trolley on the rail refer to the Maintenance Instructions of the same equipment.

Insert the wire ropes



Tip of TRACTEL® wire rope

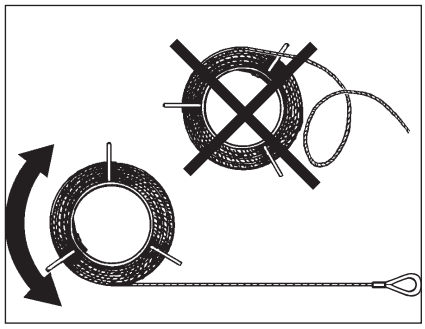
Risk of injury!
Wear safety gloves!

Only wire ropes recommended by the manufacturer should be used.

Make sure that the diameter of the wire rope corresponds to the diameter indicated on the nameplate of the SCAFOR™ hoist and that the wire rope is sufficiently long. Also make sure that the tip of the wire rope is as shown in the illustration.

Do not allow any loops to form when unwinding the wire ropes.

Refer to the user manual for the SCAFOR™ hoist.



Unwind the TRACTEL® wire ropes

Insert the lifting wire rope

1. Insert the tip of the wire rope by hand in the central hole on the top of the casing.
2. Turn the right crank handle (4) in the lifting direction and, at the same time, push the wire rope through the SCAFOR™ until the wire rope comes out of the unit.

C

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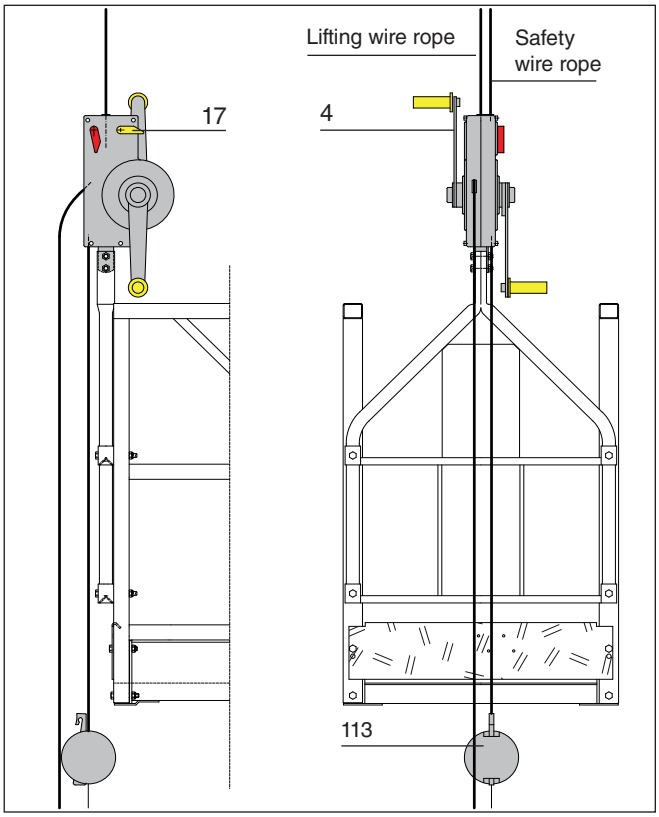
3. Run the wire rope through the unit until the wire rope is tensioned (around 20 kg).
4. For each lifting wire rope, wind the unused length on a reel.

Insert the safety wire ropes

1. Push the yellow lever (17) upward to set the fall arrest device to the OPEN position.
2. Engage the wire rope by hand through the second hole and tension slightly.
3. Fasten a ballast weight (113) at around 20 cm from the ground.
4. For each safety wire rope, wind the unused length on a reel.



Fastening the wire ropes

When fastening the suspension wire ropes keep in following order:

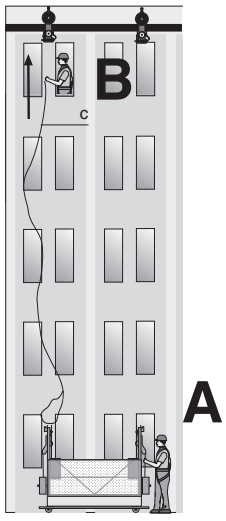
1. **Safety wire rope (24)**
2. **Lifting wire rope (23)**

OPERATOR B:

1. Raise the wire rope with a sufficiently strong cord (c).

2. Fasten the wire rope according to the fastening principle in the appendix.

Proceed in the same way to fasten the wire rope of the second hoist.



See the fastening principle in the appendix.

Weight of wire rope 40 m ≈ 10 kg

C

C.3. Checks

Checks to be performed after initial installation or following repair or maintenance work:

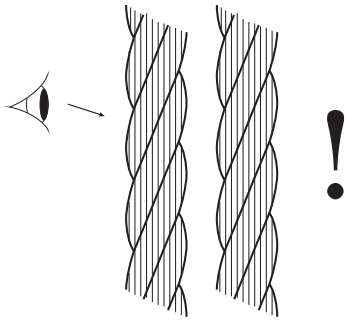
Check that the suspension wire ropes are properly fastened.

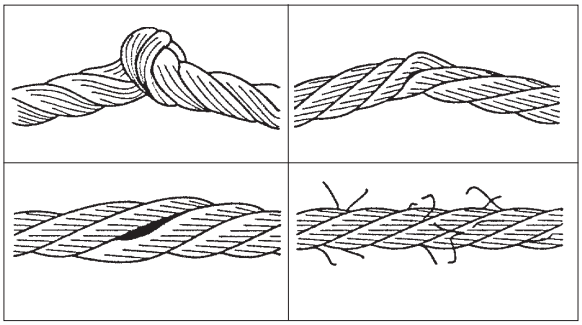
See the fastening principle in the appendix.

Ensure that end stop buffers at the railway ends are all present.

Check that all safety devices operate correctly.

Visually check the condition of the wire ropes during work.





Risk of mortal fall in case of wire rope rupture.
If the wire ropes are damaged or show any of the above signs, do not continue to use the machine.

DANGER

Your safety is concerned!

Observe operation of the equipment during work. Indicate any anomalies to your supervisor or to the building owner.

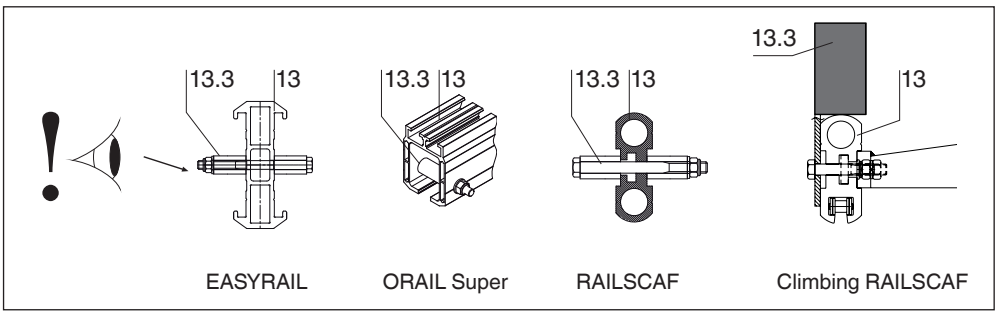
DANGER

IMPORTANT

C

Monorail circuit: (Option)

Risk of falling!
Before each use, check the stop blocks (13.3) at the end of the rail (“open” monorail circuit).



Electric monorail trolley option:

Check the connection of electric power supply to the connector (1.1).

Limit switch-limited traversing option:

Check operation of the limit switches!

DANGER

The end stops of the various monorails

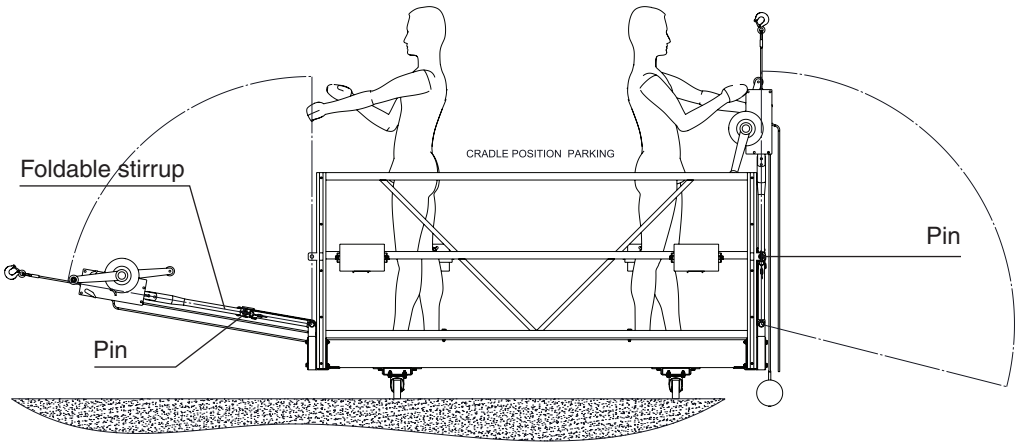
IMPORTANT

C

C.4. Work maneuvers

Getting into the platform

You can only enter or exit the cradle at the sides. To do this, you can fold down the stirrups, which are secured with a pin.



CAUTION

Operating the SCAFOR™ hoist

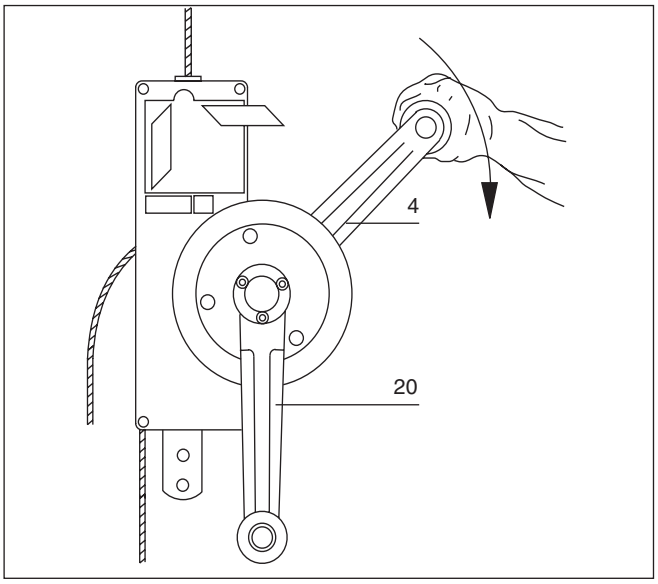
See figure in appendix.

Lifting:

1. Bring the right crank handle (4) to the down position.
2. Turn the left crank handle (20) in the lifting direction up to the vertical; in this position, the handle should automatically lock.
3. Then, operate the two crank handles simultaneously.
4. The left crank handle (20) unlocks automatically as soon as you release the pressure.
5. Resume the procedure described above to continue moving upward.

Lowering:

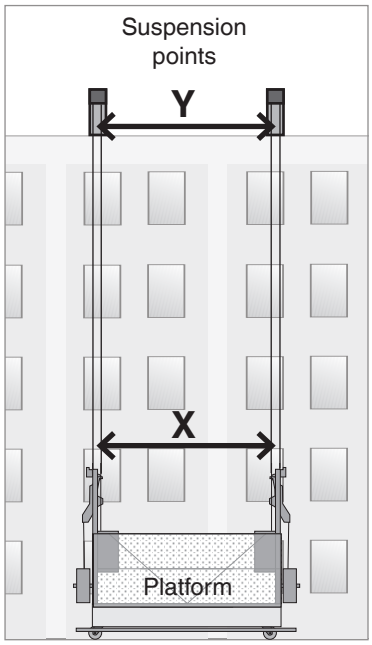
1. For lowering, only the right crank handle (4) is used; turn it in the lowering direction.
2. The left crank handle (20) should be located in the down position = disengaged position.



C

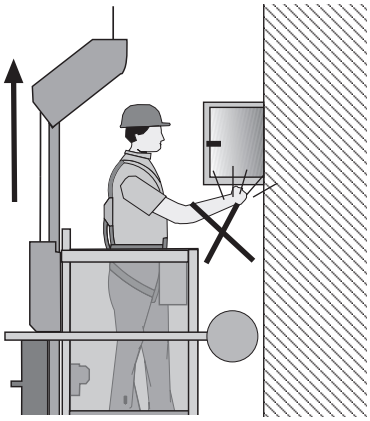
Moving the platform

1. Stop the platform at about 30 cm from the ground.
2. Remove the counterweights from the suspension and secondary wire ropes.
3. Give sufficient slack to the secondary wire ropes.
4. Lower the platform to the ground and give sufficient slack wire rope to the suspension wire ropes.
5. Move the compatible suspension used to its new position.
6. Position the platform vertically below the suspension structure.



Risk of serious accident!
The suspension points should always be aligned with the stirrup;
distance X = distance Y!

During movements, risk of hitting against building parts.
Keep your arms inside the cradle.



7. Tension the lifting wire ropes by operating the SCAFOR™ hoists in the LIFTING direction.
8. Lift the platform about 30 cm above the ground.
9. Open the jaws by placing the lever (17) in the open position (see page 10).
10. Tension the safety wire ropes by hand and fasten the counterweight (113) again on each safety wire rope.

C

Removing the wire ropes

This operation requires two people, one in the platform and the other on the roof.

The operator working at a height must wear a safety harness and must be attached to a sufficiently strong anchor point.

1. Lower the platform to the ground after removing the counterweight, and give sufficient slack to the wire ropes.
2. Remove the lifting wire ropes from the SCAFOR™ hoists by operating each hoist in the LOWERING direction.
3. Remove the safety wire rope from the SCAFOR™: grab the wire rope by hand above the casing and pull upward while keeping the yellow lever (17) open.
4. Begin to reel up the suspension and secondary wire ropes from the ground.
5. The operator on the roof unfastens the suspension wire ropes one after the other and lowers them to the ground using a rope.

Never drop or allow the wire ropes to fall from the roof.

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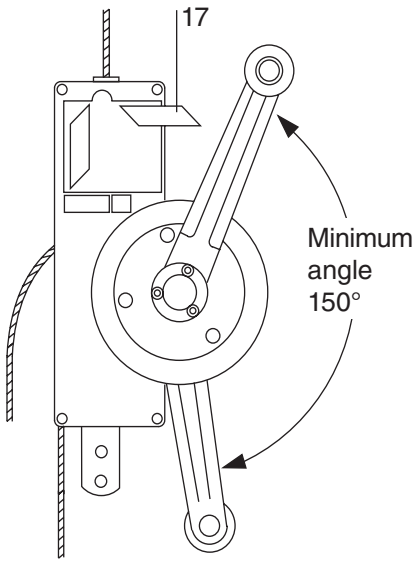
D. TROUBLESHOOTING

Fault	Cause	Intervention ○ Intervention possible by operator or building maintenance department. ● Get in touch with the After-sales Service.
SCAFOR™ hoist failure		
When operating the crank handles for lifting, the wire rope does not engage around the grip pulley.	The tip of the wire rope is not rounded. Wear or failure of grip pulley or clamping system.	○ Use an appropriate wire rope. ● Have the hoist overhauled by an approved repair agent.
The SCAFOR™ is operated in the lifting direction but the platform does not move up.	Rupture of an element in the hoist mechanism.	● Have the hoist overhauled by an approved repair agent.
The SCAFOR™ is operated in the lowering direction, but the platform does not move down.	The fall arrest device has engaged on the safety wire rope. You are unable to reset the fall arrest device using the lever (17).	○ Reset the fall arrest device; see section D.2. ● The fall arrest device is faulty; have it overhauled by an approved repair agent.
The left crank handle does not lock automatically when the right crank handle is in the down position.	The locking system is faulty.	● Have the hoist overhauled by an approved repair agent.
During a lifting movement, the angle formed by the two crank handles is normally 180°; after a number of hours of operation, this angle can decrease down to 150° (see figure below).	Worn brake lining. 	● Have the hoist overhauled by an approved repair agent.
During a lifting movement, the safety wire rope bulges between the SCAFOR™ and the suspension point.	The fall arrest device is closed. No counterweight attached to safety wire rope.	○ Open the fall arrest device using the lever (17). ○ Fasten a counterweight to the safety wire rope.

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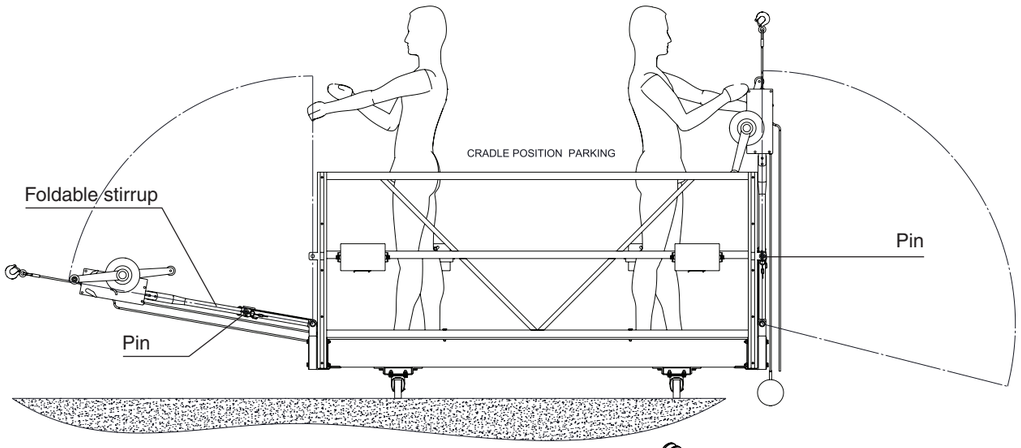
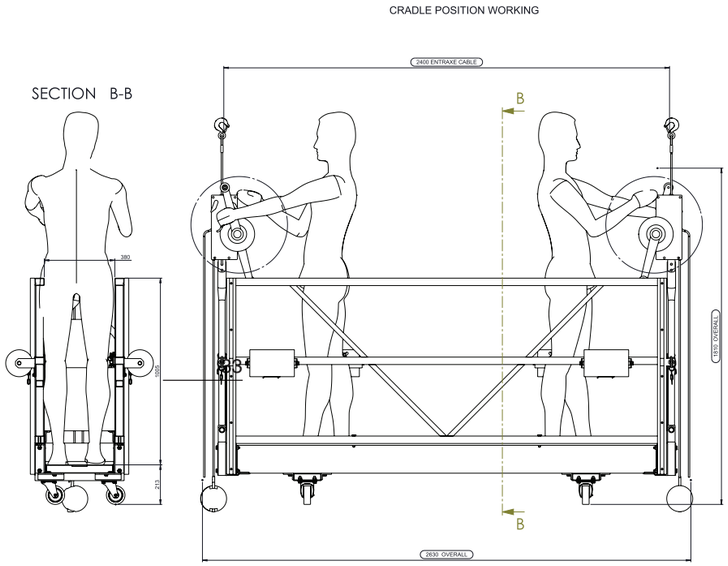
APPENDIX

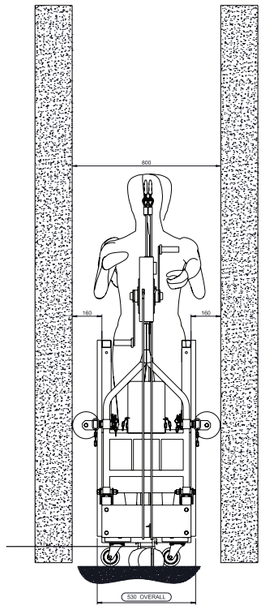
2.4 m ALTA «L» cradle with foldable stirrup

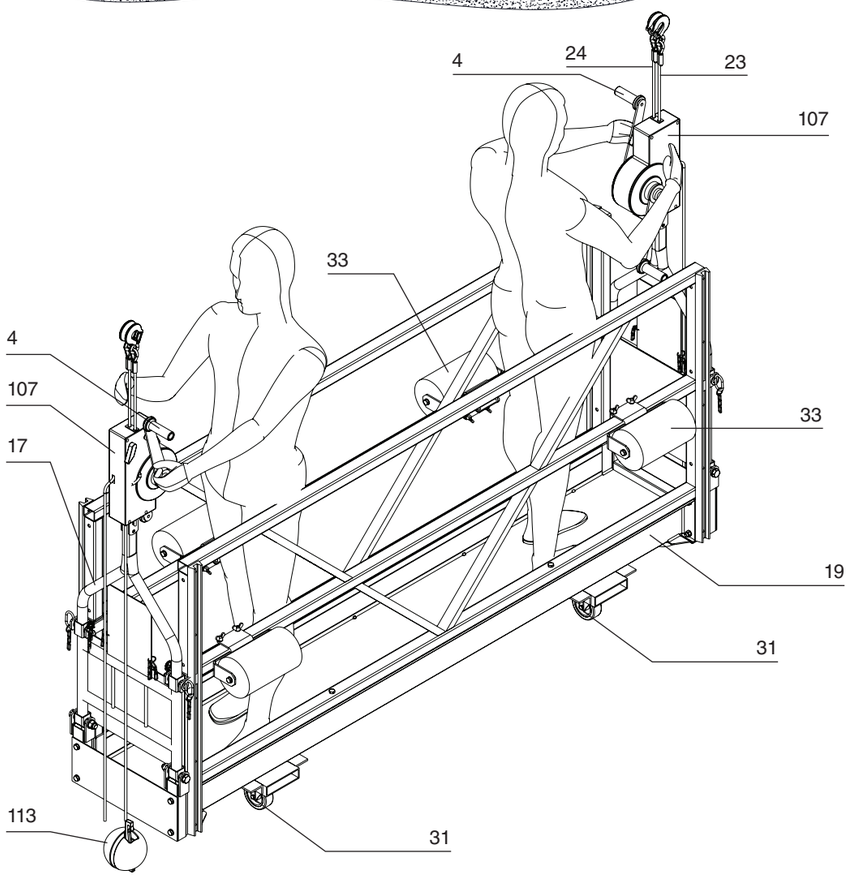
CAUTION

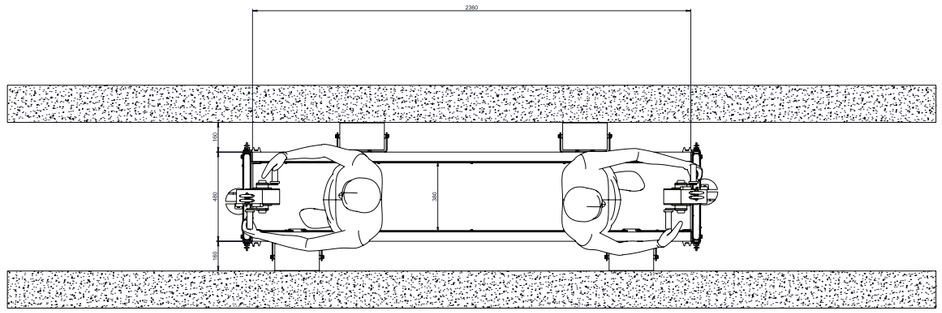
You can only enter or exit the cradle at the sides. To do this, you can fold down the stirrups, which are secured with a pin.











Main components

4	SCAFOR™ crank handle
17	SCAFOR™ stirrup
19	Floor
23	Lifting wire rope
24	Safety wire rope
31	Castor wheel
33	Facade protection wheel/ roller
107	SCAFOR™ hoist with fall-arrest system
113	Balast weight for safety wire rope

Appendix