ActSafe T1-16
Tactical Ascender

ActSafe Tactical®

T1-16 Tactical Ascender User's Manual revision 1-2011

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INTRODUCTION

Foreword

Thank you for choosing a product from ActSafe Systems AB®.

When used correctly this ascender will revolutionize the way you work at height. This hoisting equipment makes it much less stressful for you to reach your workplace in combination with lifting materials and tools.

About ActSafe

ActSafe offers you a full range of personal protective equipment (PPE), and comprehensive training in the use and handling of this equipment.

Visit our website for more information on ActSafe Power Ascenders. You will find important information, the latest versions of manuals and much more.

www.actsafe-tactical.com

About this manual

The information in this manual cannot replace training and exercise. The ascender must only be used by personnel who have undergone proper training. Improper use may result in serious injury or death.

Description of the manual

Safety messages of extra importance are presented with the words danger and caution. The meanings of the signal words are:

CAUTION

Not following these instructions may result in INJURY or damage to the equipment.

DANGER

Not following these instructions may result in SERIOUS INJURY or DEATH.

RECOMMENDATION

User recommendation is described like this.

Further information about consequences and other details is presented like this.

NOTE!

The word "Note" will precede important information about the equipment used together with the ascender.

Definitions

WORD	DESCRIPTION
Anchor	Attachment point for rope or ascender.
Ascending	Moving up on the rope.
Descending	Moving down on the rope.
Primary rope	Main rope used with ascender. Approved according to EN 1891.
Backup rope / Secondary rope	Safety rope that takes load if failure with primary rope. Approved according to EN 1891.
Fall arrest	Device that stops a fall and limits the load. Approved according to EN 353-2.
Active / Live rope	Rope that is loaded during work.
Passive / Dead rope	Unloaded rope during work.
User / Operator	Operator of the ascender, either by speed control handle or by remote control. There can be two or more at the same time.
Competent person	Personnel with adequate training and certification for the assignment.
Factor 1 fall	A fall of distance X m with X m of rope catching the fall. Fall factor is fallendistance divided by length of rope catching it.
Petzl l'D	Industrial Descender, device for descending a rope.

DISCLAIMER

Since ActSafe Systems AB is unable to control the use of the equipment, the user and the user only is responsible for any damage, personal injuries or death resulting from improper use and maintenance of this product.

ActSafe Systems AB, including our distributors or working partners do not accept any responsibility or liability for payment due to damage, personal injuries or death resulting from use of uncertified personnel or the improper use and maintenance of this product.

The ascender is not safety equipment. It is a tool for hoisting and lowering a person and/or equipment. It must therefore always be used in combination with an approved secondary system including approved components for fall arrest.

The product must not be used by personnel that have not been certified by ActSafe Systems AB or our distributors.

This manual covers the basic features and use of the ascender only and does not replace adequate training and certification for working in rope access systems.

SAFETY

Users of this product must have been certified or have undergone proper approved training either by ActSafe Systems AB or by ActSafe approved distributors.

DANGER

Read this chapter carefully and make sure you understand its contents.

Ascender safety

The ascender must not be used:

- For anything other than that for which it has been designed.
- In an explosive environment.
- If modified in any way by anyone other than ActSafe Systems AB.
- After a free fall from a height more than 1 meter against any hard surface.
- If subjected to a dynamic load as it is designed to work in static systems only.
- If filled with water or if you suspect risk of a leakage.
- If subjected to mis-use in any way those parts or components may have been damaged.
- In combination with other than ActSafe original battery charger.
- In combination with damaged or modified battery charger

Use only original spare parts / material recommended by ActSafe Systems AB.

If opened and closed by anyone other than competent personnel it may not be water-tight. If the inside of the ascender is filled with water the battery can generate flammable gas, thus causing a risk of explosion.

Other battery chargers may damage the battery and may cause development of toxic gases or in worst-case scenarios cause an explosion.

If unclear of the condition of the ascender, it must be inspected and approved by ActSafe Systems AB or an ActSafe approved distributor before use.

The ActSafe Ascender and its equipment must be checked before and after every use and must be subject to at least one inspection per year (national regulations may require more frequent inspections).

General safety measures

- Draw up a risk analysis and a minimum of 2 separate rescue plans.
- Make suitable rescue equipment available.
- Check all components in the system.

RECOMMENDATION

Plan for rescue when rigging the rope system.

The area of risk under someone working at height is within a radius of 2/3 of the height and larger due to strong wind. Other persons must keep away from the area of risk.

Always secure tools and equipment.

Work method analysis recommendation

This diagram is made for a general situation where the main operator (the operator primarily using the winch) and the 2nd operator (rescue personnel) are situated in different positions. Consider this as an aid in analysing the work situation and doing the risk analysis.

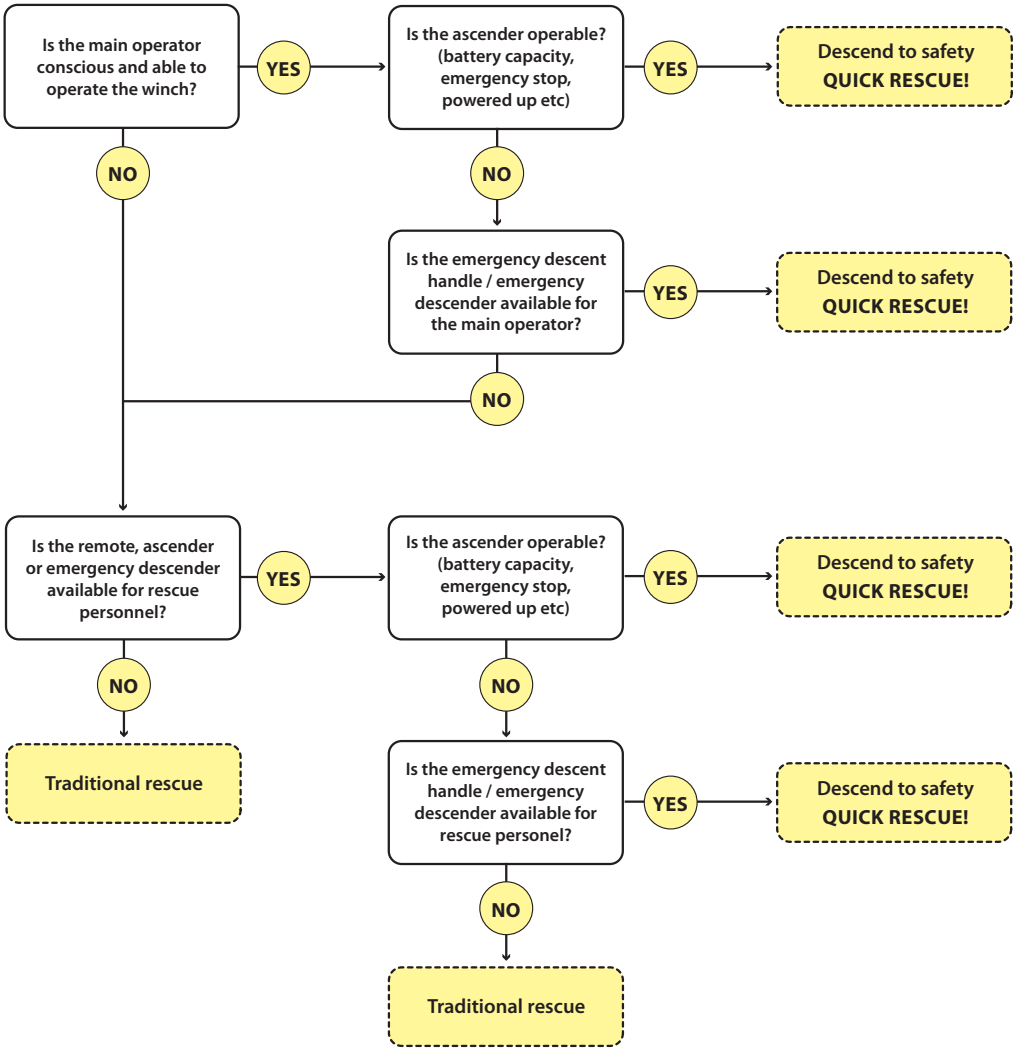
Traditional rescue methods refer to climbing/ascending the unloaded rope to the injured operator and lowering/descending to safety with the help of equipment. This will normally take longer than just descending directly without needing to access the injured person.

As time is important in accessing an injured person ActSafe recommend the following when planning your work with an ascender.

RECOMMENDATION

Have 2 separate ways of controlling the ascender (direct and with remote, I'D or other). The backup operating method should be available to the 2nd operator/rescue personnel.

Start the assignment with fully charged batteries to minimise time and risk in case of an accident.



Rope system safety

The rope system must consist of a primary rope (1) and a secondary back-up rope (2), both must be approved according to EN1891 and have a diameter of 10-13mm. The two ropes must have separate anchor points that must hold at least 15 kN each. A competent person shall judge if the separate anchor points are sufficient.

The product ascends or descends on the primary rope. If any part of the load carrying system should break then the load is immediately transferred to the secondary rope which, together with the fall arrester (3) according to EN 353-2, provides a fall arrest system.

Do not descend on a twisted rope. It may result in a rope jam or in the worst-case scenario the rope being forced off the rope grab with serious injury or death as a result.

Rope characteristics are an important issue when using the ascender. Ropes with characteristics not suitable for the ascender might, in the worst-case scenario, result in a jam between the rope grab and the knife, with a damaged rope as a consequence.

Rope recommendations

ActSafe has tested a variety of ropes; please contact us for more information about different rope qualities. Please read and understand the tips and directions regarding ropes below and you will get more out of your ropes as well as your ActSafe Ascender.

As a rule of the thumb one can say that extremely soft ropes don't get good grip in the rope grab. A very soft rope may result in poor lifting capacity since the rope starts to slip or in the worst-case scenario even a jam.

NOTE! *Not all EN 1891 ropes perform in a similar way. They have slightly different characteristics (stiff, soft, thick/thin mantle etc).*

DANGER

A rope that has been in contact with acid must not be used under any circumstances. Scrap the rope!

RECOMMENDATIONS

The user should carry out tests with the rope normally used prior to operations involving the ascender. Consult ActSafe for more information and assistance in the test of the rope.

Keep your ropes in good condition, check with your distributor / manufacturer on how to do this.

A new rope will get an increased service life if it is put to soak in cold water before the first use.

Avoid getting sand or dirt onto/into the ropes since it will wear the rope grab and loop. Use a rope mat, rope bag or similar.

If the rope has been soiled by dirt, sand, gravel, oil or grease, consult your manufacturer on the proper action.

Personal safety

The user must wear a combination harness approved according to EN813 (low attachment point for the primary rope) as well as EN361 (high attachment point for the secondary rope or fall arrester). National regulations may require more.

Do not use the ascender if you are tired, ill or under the influence of alcohol, drugs or medication.

Before use make sure that you

- Check all components in the system.
- Use appropriate PPE (Personal Protective Equipment, for example helmet, gloves and protective eye wear).
- Use appropriate clothes without loose hanging parts.
- If necessary bind long hair and beards to keep it the shoulder region free.

When using make sure that you

- Pay attention and use common sense.
- Do not hold the rope just above the winch; there is a risk of being pinched.
- Keep your hands and feet off rotating parts.
- Avoid pendulum movement when starting to ascend.

Training

Training is required prior to use of the T1-16 Tactical Ascender. However, depending on your rope skills, you may be competent enough to use the unit already after a two hour ”awareness training”. Awareness training is normally carried out by your local distributor.

Safe Tactics, the world wide agent of ActSafe Tactical product range, also offers 3-5 days bespoke training courses, where you learn how to get the most out of the ascender.

- Urban Access.
- Industrial Access.
- Rescue.
- Mountain and Remote Access.
- Marine Access / Boarding Operations.

Bespoke Training

Tactical procedures can be included; specific to the intended application. Our courses can be facilitated in our purpose built Test & Training Centre in the Netherlands (20k from Amsterdam Airport) or offered at your venue anywhere in the world.

Our trainers are experts with many years of “hands-on” experience in your field of operation.

Please contact us for more information.

SYSTEM DESCRIPTION

NO	PART
1	Rope grab system
2	Primary connection
3	Sling
4	Attachment karabiner
5	Chassis
6	Schrader valve
7	Connector

NO	PART
8	Housing
9	Speed handle
10	Control panel
11	Emergency descent handle
12	Secondary connection point
13	Lifting handle

NO	PART
1	Loop (Rope guide)
2	Knife
3	Rope cover
4	Rope grab with heat protection shield

General

This ascender has been designed for lifting/lowering a person or load in a static rope system (including backup rope), with ropes of 10-13mm approved by EN1891. The dead rope shall be unloaded.

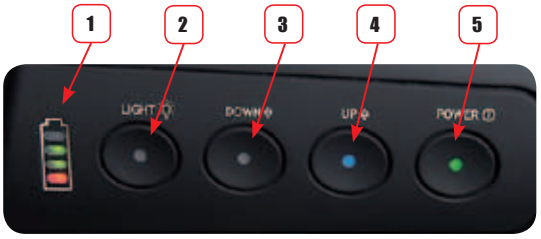
The karabiner in the primary connection can be replaced by any other karabiner approved by EN362. The sling in the chassis cannot be replaced, by anything other than an original spare part from ActSafe Systems AB.

The ascender is equipped with a Schrader valve. It allows leakage/tightness test equipment to be connected during inspection. ActSafe can offer equipment as well as training for service personnel.

Control panel

All buttons are equipped with LEDs that indicate the travel mode that is active.

If the ascender is switched off when the LEDS are deactivated, the LEDS will be deactivated when it is switched on the next time.



NO	PART
1	Battery indicator
2	Lights on/off button (press 3 sec)
3	Down button
4	Up button
5	Power button

RECOMMENDATION

Always light the control panel before shutdown to avoid confusion when starting the ascender.

Battery

The internal high power lithium ion battery is encapsulated in the ascender. This battery can be charged at any time, no so called memory effect will reduce the battery capacity.

The normal service life of the battery (around 500-600 charging cycles) will be decreased if frequently used at high temperatures.

Use in high temperatures

The capacity is less affected by high battery temperature. The range will be slightly decreased.

Tests show that the battery temperature limit was reached after approx 75% of the battery capacity was used for strenuous work with a battery preheated to 50°C. The ascender is well designed to do its work across the full temperature range. The risk of over heating is very small.

RECOMMENDATION

If used in conditions potentially able to heat the ascender to temperatures above 50°C, keep the ascender cool to prevent the small risk of overheating.

Use in low temperatures

The capacity of the battery depends on the battery temperature. Extreme temperatures will affect the capacity, most noticeably in cold temperatures.

Even when battery temperature is as low as -20°C the accumulated lifted height with 120 kg will not be less than approx 250 m. (normally 300-400m).

It will take time before the battery temperature is decreased when put in a cold environment. Tests show that it will take 4.5 hrs for a room tempered ascender kept in the transportation box to reach 0°C when put in -15°C. For an ascender stored outside its box the same time will be 3 h.

A battery temperature of 0°C is equivalent to the initial lift speed being reduced to 80%.

It is only the initial performance that is limited when the battery of the ascender is cold. When used the internal temperature will rise and normal performance can be expected after approx 50 m.

When the battery is cold it can behave as if the charge level is low. This may cause the battery indicator to show the wrong level. The indicator will return to normal after next recharge.

RECOMMENDATION

When used in cold environments maintain the battery temperature by keeping it in the transportation box as long as possible. This will prolong the time before performance is limited.

When using the ascender with a cold battery, be aware that the initial lift speed capacity may be limited. It is only possible to ascend at lower speeds before the battery warms up and normal performance can be expected.

Battery indicator

Every battery is individual and will differ slightly in capacity, which makes it impossible to initially program the battery indicator to show the correct value. From the start it is preset to a mean value. At the end of the battery service life its capacity will be somewhat decreased.

Because of this the battery capacity is checked by the software each time it charges completely from flat battery, and the battery indicator is adjusted accordingly. I.e. the system is continuously adapting to the status of the battery.

As a result to this, with a new unit/battery it may take up to 5 charging cycles before the indicator is showing accurate information.

A 2nd effect is that the battery indicator will show 100% charge after recharging throughout the lifetime of the battery.

While charging an LED will flash. The flashing LED will indicate the current level of charge. When the charging is complete or interrupted the flashing will stop.

LEDs	BATTERY CAPACITY
1 red 3 green	75-100%
1 red 2 green	50-75%
1 red 1 green	25-50%
1 red	0-25%

Remote control

The remote is primary a rescue tool, allowing another user to move the operator up or down in case of an emergency. However, the possibilities when using the remote in other applications are numerous. Such applications shall be trained in a safe environment using a back-up system.

The remote control allows the ascender to be operated from a distance. The remote control will override the control buttons on the ascender, i.e. when the remote is switched on it will not be possible to operate the ascender by its own controls.

If the remote is not used it will automatically switch off after 10 seconds. The ascender will need to be switched on for the remote to function. When shutdown; the ascender will be in standby mode for 4 hours allowing a remote to start it.

The remote allows ascending and descending at 2 different speed alternatives; slow and fast. (25% and 75% of maximum speed respectively).

The remote control is not water tight. The protection class is IP65 (i.e. no ingress of dust and water projected by a nozzle against enclosure from any direction shall have harmful effect).

Several remote controls can be used with one ascender, of which only one can be active at each time. Contact ActSafe or your distributor for more information.

NO	PART
1	Ascend speed button
2	Activate button
3	Descend speed button
4	Slow speed LED (red)
5	Fast speed LED (red)
6	Power LED (green)

When used with several remote controls the first one to contact the ascender will be active. To change remote, wait until the first remote automatically turns off.

The remote control holder is equipped with a full strength sling allowing it to be used to connect person or load. This sling is a part of the ascender system and cannot be used as a separate sling in other applications. With the ascender in the anchor, connect to the rope (using a knot/tibloc/ I'D or other) with the remote holder to the harness to get an ergonomic operating position of the remote.

RECOMMENDATION

When ascending remote controlled with the ascender in the anchor, attach the remote holder to the harness and connect to the upper part of the remote holder sling to get an ergonomic operating position.

Operation in water

This product is water proof to a depth of max 10 meters for max 4 hours.

The ascender can be equipped to allow diving ascent from greater depths. Contact ActSafe System AB or your local distributor for further information.

If opened and closed by anyone other than competent personnel it may not be watertight. If the inside of the ascender is filled with water the battery can generate flammable gas.

The rope can be loaded/unloaded under water. The ascender can be operated down to a depth of 1.5 meters. At 4 meters depth the power button can be engaged due to the water pressure, i.e. the LEDS will turn on. The ascender may not be operated at this depth.

If frequently used for diving we recommend that the user/owner has equipment and knowledge to perform tightness tests on a regular basis.

Always clean the ascender with fresh water after it has been use in salt water.

To prevent the LEDs lighting up unintentionally, put the ascender in Covert mode at the start of the assignment.

DANGER

Do not use if leakage of water is suspected.

RECOMMENDATION

If frequently used for diving we recommend that the user/owner has equipment and knowledge to perform tightness tests on a regular basis.

Always clean the ascender with fresh water after it has been use in salt water.

To prevent the LEDs lighting up unintentionally, put the ascender in Covert mode at the start of the assignment.

Buoyancy aid

The ascender is not buoyant itself; a separate buoyancy aid is needed, which replaces the lifting handle.

If the buoyancy aid is fully inflated the ascender will float at surface level and neutral buoyancy occurs at 6.5 meters depth (fresh water).

The buoyancy aid can withstand an internal pressure of 2 bar at surface level without failure, equivalent of filling it at depth of 10 m. I.e. the neutral depth can be adjusted from 0 to 10 m by emptying or adding air.

Emergency descent

A brake is always engaged when power is disconnected or when the speed control handle is at rest. When powered on the system is in control of the brake, making it very hard to manually operate.

The emergency descent handle shall be used like any other descent device. The speed and descent distance shall be adjusted according to the circumstances. Use the emergency in normal speed (<140m/min).

An emergency descent at very high speed and over very long distance will risk damage to the battery due to uncontrolled charging of the battery. This risk is increased with a fully charged battery.

CAUTION

Do not use the emergency descender at maximum speed and/or over very long distances.

RECOMMENDATION

When used in training, descend short to medium distances at normal speed with less than 100% battery capacity.

Charger

When the battery is at room temperature the charging time is approximately 45 minutes. If the ascender has been used recently the charging time will be longer, since the internal battery temperature is higher and the charger can't work at full effect.

When tested at ActSafe the longest time for recharge due to very high battery temperature is 3h.

When the charger is connected the ascender will switch into charging mode, where operation is not possible.

Other battery chargers may damage the battery and may cause development of toxic gases or in a worst-case cause an explosion.

CAUTION

Only use in combination with ActSafe original battery charger.

RECOMMENDATION

The charging time with elevated battery temperature can be decreased by cooling the ascender while being connected to the charger.

Over load and heat monitoring and protection

The ascender is well designed for strenuous work with loads up to 150 kg. The risk of over heating is slim.

When tested with a battery preheated to 50°C and a load of 120 kg a distance of 300 m could be travelled before the temperature limit was reached. This test simulates a very extreme situation.

The load is monitored electronically and if the load exceeds 180 kg, the motor is switched off.

The internal temperature of the ascender is monitored continuously and performance (lift speed) is limited if there is a risk of over heating.

If over heated (very unlikely) the ascender must cool down before it comes operable again. The time for cool down is dependent on the ambient temperature.

USAGE

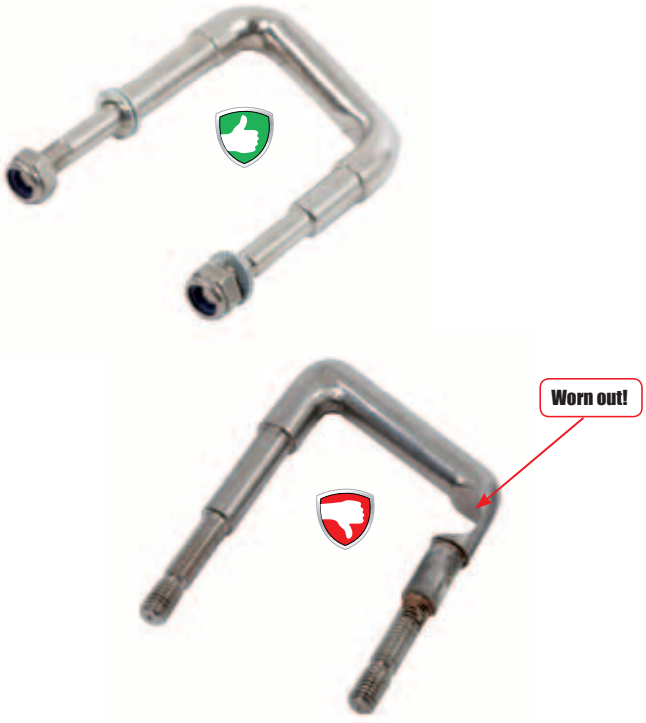
Checklist before and after use

The user must make sure that the ascender is in full working order and the correct preparations have been made before each use of the ascender. If in doubt do not use the ascender and consult ActSafe or an approved distributor.

Check the ascender and its components for loose parts, excessive wear and damage. Damage includes cracks, marks and/or abnormal wear indicating the product has been subject to excessive force or impact energy.

Inspect the rope grab system in particular;

- The rope grab, for example the ridges, should be intact.
- The rope cover.
- The rope guide.
- The knife.



Further inspect

- The primary connection; the sling and the karabiner.
- The chassis, especially the area for the primary connection.
- That the ascender functions and controls are fully functional.
- Regular inspection performed (according to national regulations).
- All other parts.
- The battery charge level is sufficient for the assignment.

If in doubt about the condition of the ascender consult either ActSafe Systems AB or an approved distributor.

Pay attention to the following points when assessing the work situation.

- Rescue plan and rescue equipment available.
- Risk analysis performed.
- Backup rope system installed and the fall protection device (EN 353-2) attached to the front or rear connection point (EN 361) of the full body harness.

DANGER

A broken loop will result in the rope to leave the rope grab with a free fall as the result.

Warning! The picture shows a loop that is worn to a dimension far from what is acceptable/safe.

CAUTION

If used frequently for diving we recommend frequently recurring tightness inspections.

Connect to rope

Check that the live rope exits to the left and that the rope cover is fully closed.

Attaching the rope incorrectly can result in serious injury or death. Always use the ascender with a backup rope system.

DANGER

Make sure that the rope is attached correctly before use.

RECOMMENDATION

Use the motor to facilitate when placing the rope around the rope grab.

Drive the ascender to waist level to simplify connection to harness.

1. Place the ascender on the ground.
2. Open the rope cover.

3. Form a loop on the rope and push it through the rope guide just above the rope grab.

4. Put the rope around the rope grab.
5. Close the rope cover.

6. Connect the primary connection karabiner to the EN 813 connection point of the full body harness and check the karabiner is locked.

Ascent & descent

1. Switch the ascender on.
2. Choose travel direction up/down.
3. Turn the speed control towards you to increase the speed.
4. Feed away the dead rope gently during the first few meters of ascent. After approx 5 meters the weight of the rope will be sufficient to "clean" itself from the ascender.
5. Stop the motion by turning the handle away from you or letting it go.

Always make sure that the rope feeds smoothly. During ascent make sure the outgoing rope is not blocked in any way. During descent make sure no twists pass the rope guide.

CAUTION

Do not hold the rope just above the winch, there is a risk of being pinched.

RECOMMENDATION

Stand straight beneath the anchor point in order to avoid a pendulum movement when starting off the ground.

Adjust the speed according to the circumstances, be aware and use common sense.

If balance is needed, hold on to the primary connection sling or karabiner.

When descending, be careful as the high descent speed may activate the fall arrest device.

Twisted ropes, rotation

Badly twisted ropes, e.g. as a result of the operator rotating/spinning during ascent/descent may be dangerous and should be avoided.

A badly twisted rope may cause a rope jam that makes the ascender non operable. In the worst-case scenario the rope can be forced off the rope grab, with serious injury or death as a result (if a back-up rope system is not used).

DANGER

When descending, make sure the rope goes cleanly into the rope grab, i.e. that there are no curls or similar on the rope.

Remote control usage

The power for the ascender needs to be switched on.

1. Press any button on the remote to activate it. (The green LED will flash 3 times before going steady if connection with ascender is successful).
2. Press the down/up button once for slow speed, twice for fast speed.
3. Press the "Activate" button to ascend/descend at selected speed and direction.

CAUTION

Be careful operating the remote if you don't have visual contact with the ascender.

DANGER

Always use the remote in combination with stopper knots at each end of the rope.

Covert mode

Switch on / off all LEDs by pressing the "LIGHT" button on the control panel for 3 seconds.

In covert mode the lights can be turned on for a glimpse of the ascender status. Press the "LIGHT" button for less than 3 seconds for the lights to temporarily light up.

RECOMMENDATION

Turn the lights on before putting it away for storage, to avoid confusion whether the ascender is turned on/off.

Operation in water

Ensure the watertight cap is mounted over the connector and that the Schrader valve is closed. If the inside of the ascender is filled with water the battery can generate flammable gas.

DANGER

Do not dive with the ascender if you suspect a leak or if it has been subject to an incident that could result in a leak.

RECOMMENDATION

If neutral buoyancy is required at a depth less than 6.5 meters, let air out to make it neutrally buoyant. Likewise if buoyancy is needed at a depth greater than 6.5 meters, add some air.

It is not necessary to let the air out when approaching the surface; the buoyancy aid can withstand the increased pressure at surface level.

Emergency descent

Whenever the ascender is not running the mechanical brake is activated. This brake can be controlled manually to allow an emergency descent. The function should be treated as a normal descent device.

1. Switch the power off (even if battery is almost empty).
2. Place a hand on the dead rope.
3. Descend by gently pressing the handle to the side.
4. Stop the descent by letting go of the descend handle.

CAUTION

Do not use the emergency descender over very long distances.

RECOMMENDATION

In most cases the emergency descent is not needed as the ascender can be restarted to allow normal descent with the motor.

Adjust the speed according to the circumstances, be aware and use common sense.

Charging

Charging can be done no matter whether the ascender is switched on/off.

1. Remove the watertight cap from the connector.
2. Check that the charger is switched off and not connected to the mains supply.
3. Position the red dot on the cable connector up and gently connect.
4. Use the metal arm to rotate the inner ring clockwise to the locked position.
5. Connect the charger to the main supply
6. Switch the charger on. An LED will start to flash on the winch to indicate charging.

Transportation

For short transports, carry the ascender by the lifting handle/buoyancy aid.

During normal transport the transportation box is optimal as it protects the ascender from damage. Always make sure the Ascender is secured before being transported in a vehicle.

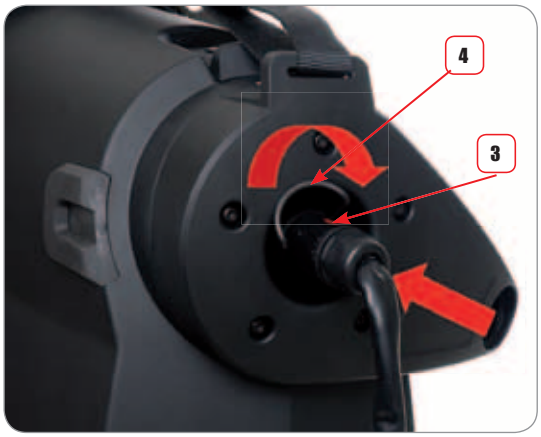
Transportation in non-pressurized cargo area

If transported at heights above 2,500 m, open up the Schrader valve during the transport so as not to risk damage due to the low pressure. The transportation box can be closed.

CAUTION

Failure to disconnect the charger from the ascender when the charger is disconnected from the mains supply will slowly drain the battery to a level where charging is no more possible.

7. When all LEDs have stopped flashing the battery is fully charged. Switch the charger off and disconnect it from the main supply.
8. Disconnect the charger from the ascender.
9. Replace the watertight cap.



Storage

Always clean and dry the ascender and the transportation box before putting it away for storage.

Store the ascender and the remote in a cool, dark and dry place. It can be stored in the transportation box, make sure it is dry.

RECOMMENDATION

Make it a routine to charge the battery before putting it into storage so that you always have a fully charged battery when the ascender is taken into use.

Use the transportation box to extend the service life of the ascender.

If the box is hard to open after transport, use the vent on the side of the box to let air into the box.

ACCESSORIES

Quick-Out Karabiner

The quick-out karabiner is intended for use where it may be necessary to quickly escape the ascender.

The quick-out karabiner can release a fully equipped operator with a simultaneous push on the release buttons. Thus incorrect use may result in serious injury or death. Training is required. All training shall be made with a back-up rope system.

NOTE! The quick-out karabiner is not a CE marked karabiner. Each item is individually tested by the manufacturer.

Installation of quick-Out karabiner

NOTE! Change from ordinary karabiner to the quick out karabiner should be done by competent personnel in a workshop.

The picture series on page 28 shows how to change to the quick out karabiner:

1. Disengage the two red safety locks by sliding up.
2. Press the two release buttons simultaneously.
3. Lift out the internal part.
4. Unscrew the bolt on the internal part
5. Remove karabiner from primary connection.
6. Attach the internal part by screwing the bolt to the sling.
7. Attach the external part, align the red dots and gently push it in place.
8. Slide the red locks down to locking position.
9. Attach the karabiner.

DANGER

Due to the risk of the quick-out karabiner being accidentally released by the user it is our recommendation that it is only used when absolutely necessary.

1

2

3

7

8

4

5 6

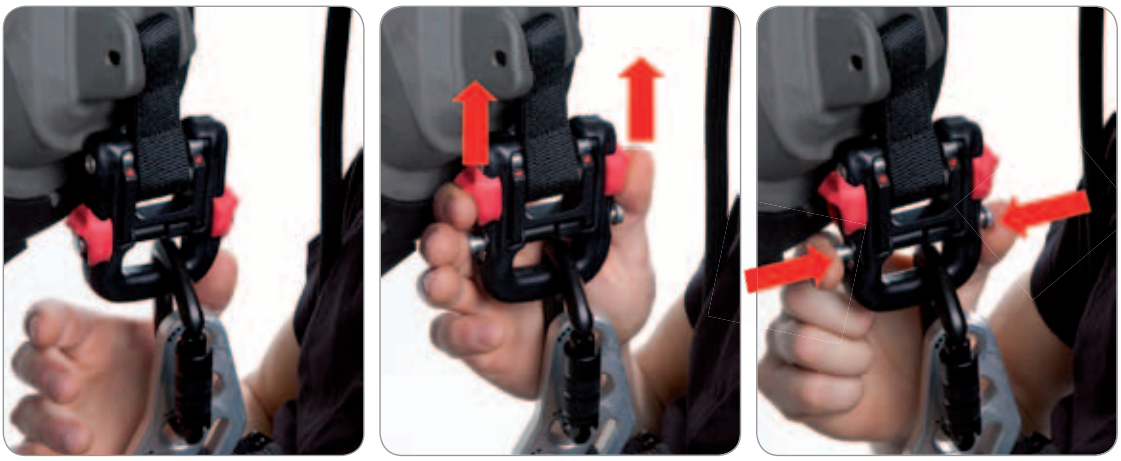
9

Disconnect Quick-Out karabiner

1. Disengage the two red safety locks by sliding up.
2. Press the two release buttons simultaneously to release.

DANGER

Only disengage the red safety locks just prior to release of the karabiner.



Reconnect Quick-out karabiner

1. Reconnect the Quick-out karabiner by aligning the red dots and gently push it in place.
2. Slide the red locks down to locking position.

SERVICE & MAINTENANCE

Use only original spare parts / material recommended by ActSafe Systems AB.

Clean the unit regularly. Check the charging pins and karabiners for oxidation. Clean and lubricate if needed.

RECOMMENDATION

Go through "Checklist before and after usage" at every maintenance to increase the safety for the user/users of the ascender.

Clean the charging pins

1. Remove the charging cap.
2. Spray the pins with a multi purpose lubricant such as "CRC 5-56" or similar.

Clean the ascender

Never use a high-pressure washer, this may cause damage to the ascender.

Rinse the ascender with water, wipe with a wet cloth and let it dry.

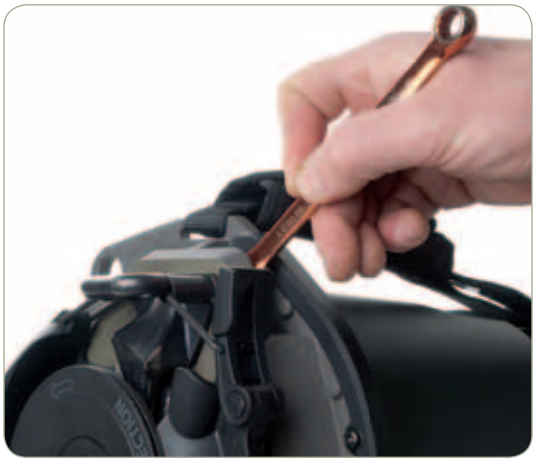
Clean the karabiner thoroughly, lubricate with thin oil.

Changing the primary connection sling

If unsure of any of these steps, contact ActSafe Systems AB or local distributor.

1. Unscrew the screw holding the sling.
2. Pull out screw, the sling will come loose.
3. Assemble new sling on the screw.
4. Tighten the screw to 10 Nm.
   Use Loctite 542!

Changing the rope grab system



If unsure of any of these steps, contact ActSafe Systems AB or local distributor.

1. Unscrew the rope guide (2 nuts).
2. Pull out the rope guide, lift up the knife.
3. Unscrew the rope grab, take off the heat shield (1 screw).
4. Pull out the rope grab and rope cover.

Check and replace any damaged parts.

5. If parts are not replaced, clean them before reassembling.
6. Put the rope cover, rope grab and heat protection shield on the axle, with the screw tightened to 10 Nm and use Loctite 542 .
7. Put the knife, spacing washer and loop in place. Attach the rope cover to the rope guide. Tighten the nuts to 10 Nm. Make sure the Nordlock washers are assembled correctly.
8. Check that the knife is centred in the rope grab.

Remote control, changing the battery

1. Remove the battery cap (2 screws).
2. Replace the batteries.
3. Reattach the battery cap (2 screws).

Equipment list

Hex key 5mm – straight end

Wrench 10 mm

Phillips Screwdriver

Thin, long pliers

Torx T25 screwdriver

Pliers and hammer

Material

Thin Oil

CRC 5-56

Loctite 243

Spare parts

The most common parts are listed here, contact ActSafe Systems AB or your local distributor if you don't find your part here.

Rope grab	49-150-201
Cover	50-160-103
Knife	50-150-105
Loop	49-160-309
Sling	50-160-135
Karabiner	50-105-052

TROUBLE SHOOTING GUIDE

If this guide does not solve your problems, contact ActSafe Systems AB or an ActSafe approved distributor.

No power when main switch is pressed

PROBABLE CAUSE	REMEDY
Lights are switched off, not showing if the ascender is switched on/off.	Push the power button and operate the handle. Switch lights back on when ascender is operating.
The battery is flat.	Recharge the battery.

No response to speed handle

PROBABLE CAUSE	REMEDY
The ascender is not switched on.	Switch the power on.
The remote control is switched on.	Restart the ascender or wait for the remote to turn off after 10 seconds of inactivity.
The battery is flat.	Recharge the battery.

The ascender stops on ascent/descent

PROBABLE CAUSE	REMEDY
The ascender is overloaded.	Ensure the load is not exceeding lifting capacity and restart by return the handle to zero.
The rope is jammed.	Clear the jam.
The battery is flat.	Recharge the battery.

The ascender switches off when newly recharged

PROBABLE CAUSE	REMEDY
The charging process is incomplete due to oxidation on the pins.	Clean the pins according to manual and recharge the battery.
The charger is broken/damaged.	Repair/replace the charger, contact ActSafe or an approved distributor.
The battery is too cold.	Let the ascender heat up by operating with load at low speed.
The battery is flat.	The ascender is in need of repair and service, contact ActSafe or an approved distributor.

Ascender operates at very low speed

PROBABLE CAUSE	REMEDY
The battery is running low, only a few percent of the capacity is remaining.	Recharge the battery.
The ascender is over loaded.	Lighten the load.
The battery is to cold.	Let the battery heat up by operation with load at low speed.

The grab on the rope is poor, the rope slips

PROBABLE CAUSE	REMEDY
Rope connected incorrectly.	Reconnect the rope.
The rope is not suitable for the ascender.	Change the rope.
The rope grab is worn.	The ascender is in need of repair and service, contact ActSafe or an approved distributor.

The lifting capacity is notably weak

PROBABLE CAUSE	REMEDY
The charging process is incomplete due to oxidation on the pins.	Clean the pins according to manual and recharge the battery.
The battery is damaged.	The ascender is in need of repair and service, contact ActSafe or an approved distributor.
The battery is too cold.	Let the ascender heat up by operating with load at low speed.

The Emergency brake is difficult/impossible to operate

PROBABLE CAUSE	REMEDY
The ascender is powered up.	Turn the ascender off.

The remote control cannot operate the winch when LED is green

PROBABLE CAUSE	REMEDY
The distance to the winch is too far.	Move closer to the ascender or replace the battery of the remote.
There are objects disturbing the signal.	Move closer to the ascender to get a stronger signal.
The ascender is not powered up.	Turn the ascender on.
Wrong remote control is used.	Change to correct remote control.

The LED on the remote flashes red

PROBABLE CAUSE	REMEDY
The battery is running low.	Replace the batteries of the remote control.
The remote is corrupt.	Consult ActSafe or an approved distributor.

The ascender is very hot and there is no response to the speed handle or it operates at very slow speed

PROBABLE CAUSE	REMEDY
The ascender is over heated.	Wait for the ascender to cool down.

WARRANTY & GUARANTEE

ActSafe is responsible for the proper function of the product during the warranty period. If a defect is detected while under warranty, the product will be repaired by ActSafe or an authorized Service Dealer.

The validity of the warranty must be proved by a copy of the invoice and the serial no. of the product.

The warranty period is 12 months after the date of purchase, unless otherwise agreed, and must be proved by the documentation mentioned above.

Repairs will be carried out by ActSafe or an authorized service dealer. Please contact ActSafe for your nearest service dealer.

Limitation of liability

The cost of transportation of the product to and from the Authorized Service dealer is the responsibility of the Customer.

ActSafe cannot be held liable for:

- Periodic inspection, maintenance and repair or replacement of parts as a result of normal use.
- Consumption of consumable materials.
- Modifications made without ActSafes authorization.
- Defects due to modifications that have been made without the consent of ActSafe.
- Costs due to the necessity of adapting or modifying the product as a result of new national or international standards.

Repair under warranty will not be made if damage has arisen due to:

- Improper use or abusive handling of the product.
- Insufficient maintenance.
- The use of spares and other parts that are not compatible with the product.
- Repairs and modifications done by personnel not authorized by ActSafe.
- Insufficient packing of the product when sending it to ActSafe or an authorized service dealer.
- Accident, natural catastrophe or circumstances beyond the control of ActSafe.

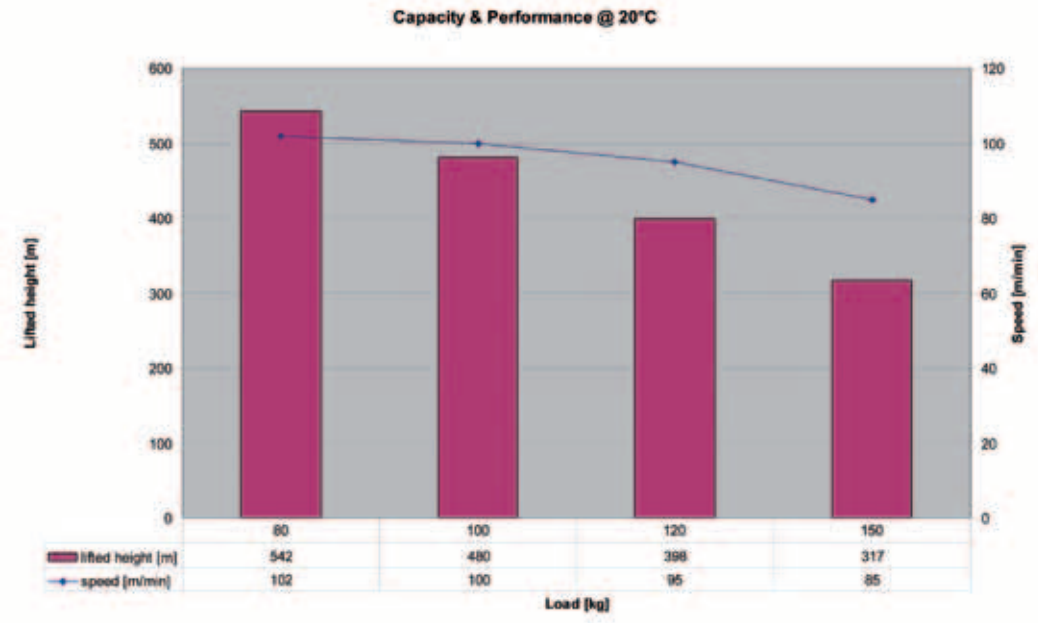
TECHNICAL DATA

NOTE The performance is tested with an unused 11 mm, unwatered rope at room temperature.

Speed, load, characteristics of ascent/ descent will affect the battery capacity; in many cases the capacity may well exceed the 400 meters on one charge.

PERFORMANCE/PART	VALUE	COMMENT
Rope	Static / Semi Static rope 10-13 mm EN1891	
Safe Working Load (SWL)	150 kg	
Overload limit	180 kg (approx)	
Max ascent speed	0-102 m/min	Continuous adjustment.
Descent speed	0-145 m/min @ 120 kg	Continuous adjustment.
Emergency descent speed	0-235 m/min @ 120 kg	Continuous adjustment.
Battery capacity	400 m with 120 kg load	At 20°C
Charging time	45 min	At 20°C normal battery temperature.
Internal temperature range	-20 °C to + 50°C	
Over heating protection	Yes	
Weight	17 kg	Including internal battery.
Dimentions	37 x 28 x 30 cm	(L x W x H)
Water proof	10 m	Can be equipped to allow ascent from greater depths.
Operable water depth	1.5 m	
Remote control range	150 m	

The capacity at 20°C with different loads and continous driving on full speed is shown in the diagram below.



APPENDIX

Declaration of conformity and EC Type test Certificate.

Declaration of EC conformity

In accordance with Machinery Directive 2006/42/EC, appendix II A

ActSafe Systems AB
Sagbäcksvägen 13
SE43731 Lindome, Sweden

We hereby declare that the power ascender type ActSafe T1-16 Tactical for the lifting and lowering of loads and persons meets the fundamental requirements of the below stated EC directives:

EC Machinery Directive (MD) 2006/42/EC

Low Voltage Directive 2006/95/EC

Including the associated amendments.

Applied harmonized standards, in particular

DIN EN 14492-1 **Cranes - Power driven winches and hoists**
Part 1: Power driven winches (02.2007)

Applied national directives, in particular

BGR 159 **Hochziehbare Personenaufnahmemittel**
(hoistable access equipment)

The design was inspected by

Fachausschuss Maschinenbau, Hebezeuge, Hütten- und Walzwerksanlagen
Prüf- und Zertifizierungsstelle im BG-PRÜFZERT
BG-Bescheinigung Nr. 08 006

(Committee of experts - mechanical engineering,
lifting gear, smelting works and rolling mills
Testing and certification body in BG-PRÜFZERT
BG-certification No. 08 006)

Lindome 2009-12-29

ActSafe Systems AB

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VAT:SE556035133901

SERVICE CARD

ActSafe Serial No:	
year of manufacture	
Date of purchase	
Date first put into service	
Name of owner	

Date of service		
DATE	**INSPECTOR**	OK

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Signature

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