

# Amendment to Avanti Service Lift, Model Shark

This amendment will replace chapter 5 in the existing manual of the Avanti service lift, Model Shark.

## 5. Daily inspection by the supervisor

If a safety device for fence doors is installed (see chapter 4.7 of the User's manual), every platform fence door must be closed to be able to drive the cabin.

### 5.1 Service lift

a) Before each operation, ensure that the traction hoist, the Fall arrest device and all auxiliary components (stoppers, wire guide wheels, etc.) are mounted in accordance with the specifications and without any noticeable defects.

b) Check whether the drive, and safety wires are fed correctly around the two wire guide wheels.

c) Wire ends (of 3 m or more in length) must be coiled separately at the floor and tied with strips in at least 3 places.

d) Check lifting capacity: (see the rating plate or section 4.5.3) – the extra load (persons and materials!) must not exceed the maximum rated lifting capacity.

### 5.2 Operating area

a) Ensure that there are no obstacles within the service lift's operating area which may obstruct the travel of the cabin or cause the cabin to hit the ground.

b) Ensure that all relevant and required protection measures below the cabin are in place. Such measures could include pent roofs or barriers to protect the staff from falling objects.

### 5.3 Control function

a) Close the doors. Press the EMERGENCY STOP button. The lift should remain still when the UP/ DOWN button is pressed. To restart, turn the EMERGENCY STOP button clockwise. If a FIXED EMERGENCY STOP button is installed (Fig. 9) test as above.

b) Test the top limit stop switch: During upward travel, press the switch manually, and the service lift should stop immediately. Pressing the limit stop switch should enable the lift to travel down again.

c) Test the EMERGENCY top limit stop switch: During upward travel, press the switch manually, and the service lift should stop immediately. Neither upward nor downward travel should now be possible.

d) Bottom safety stop. Lower the lift; it should stop before the rubber feet of the cabin reach the tower ground level. When the "bypass switch" is activated, it should be possible to lower the lift all the way to the ground.

e) Door stop switch: Open the door - it should not be possible to move the lift upwards or downwards.

Sliding door service lift: Move the cabin at a height no corresponding to a platform - it should not be possible to open the door. The door will be only able to be opened by pushing the emergency release red button from outside the cabin as well as using a M5 triangular key from inside the cabin.

f) If the optional AUTOMATIC function is installed. Set the HAND/AUTOM. selector to AUTOM. When holding the handle, the lift should remain still when the UP or DOWN buttons are activated.

g) If the Trapped-Key interlock system is installed. Turn the trapped-key switch to OFF - it should be not possible to move the lift upwards or downwards. See the Trapped-Key Interlock System Manual for further information.



#### Warning!

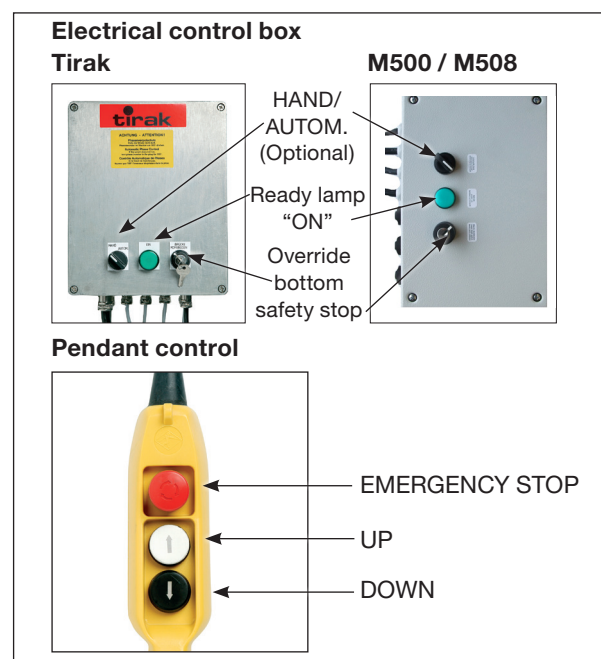
If any faults occur during work,  
- stop working,  
- if required secure the workplace and  
- rectify the fault!



#### DANGER!

Make sure that nobody is exposed to danger below the service lift, for instance from falling parts. Suitable measures: Pent roof or barriers.

Fig. 13



## 5.4 Automatic operation test

Perform this inspection only if the AUTOMATIC function is installed.

- a) Press EMERGENCY STOP button on the pendant control. Turn the HAND/AUTOM. switch on the electrical control box to the right to activate automatic operation.
- b) Deactivate the EMERGENCY STOP button by turning the button clockwise. (Check the EMERGENCY STOP button fixed is deactivated.) The service lift should stand still.
- c) DO NOT try to activate the “automatic operation” switch.
- d) If the trapped-Key interlock system is installed, turn the trapped-key switch to ON. With the doors closed, press the UP and DOWN buttons. Neither upward nor downward travel should be possible (Switch in pendant control holder blocks the operation).
- e) Press the EMERGENCY STOP button on the pendant control.
- f) Place the pendant control in its holder so it is operational from the outside.
- g) Leave the cabin and close the door.
- h) Deactivate the EMERGENCY STOP button. The service lift should stand still.
- i) Press the UP button. The lift should travel upwards.
- j) Press the EMERGENCY STOP button. The lift stops.
- k) Turn the EMERGENCY STOP button clockwise and press the DOWN button. The service lift should travel downwards until the EMERGENCY STOP button stops the service lift.
- l) Remove the pendant control from holder.
- m) Return the HAND/AUTOM. button to HAND.
- n) Check that the UP and DOWN buttons work again.
- l) Remove the pendant control from holder.
- m) Return the HAND/AUTOM. button to HAND.
- n) Check that the UP and DOWN buttons work again.

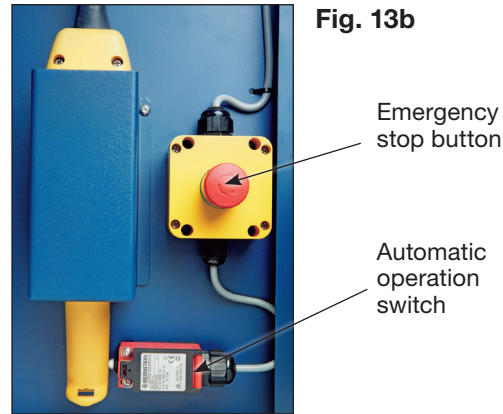


Fig. 13b

## 5.5 Remote operation test

Perform this inspection only if the remote control function is installed.

- a) Set the electrical control box switch HAND/AUTOM to AUTOM (fig 7 a).
- b) On top of the remote operation receiver switch the device on (fig 7 b).
- c) Press the up arrow on the remote operation transmitter. The service lift should ascend.
- d) Press the down arrow on the remote operation transmitter. The service lift should descend.
- e) Once the test is complete, switch the remote operation function off.

## 5.6 Fall arrest device

- a) Engage the Fall arrest device by pressing the fall arrest device stop button - the handle should jump to the “ON” position (Fig. 8 section 4.7).
- b) Reopen the fall arrest device by pressing down on the lever – the lever must engage.
- c) During operation, regularly monitor the centrifugal force regulator relay’s rotation by looking through the window.

### 5.6.1 Service lift installed with Tractel Greifzug BSO.

If the Service lift is installed with Tractel Greifzug BSO the one of the following daily overspeed tests are mandatory:

**If the safety wire is installed with tension spring** as in figure 13c, the overspeed-test is executed according to 5.6.1.1.

**If the safety wire is installed with counter weights** as in figure 13d, the overspeed-test is executed according to 5.6.1.2

**If the safety wire is installed with tension spring** as in figure 13e, the overspeed-test is executed according to 5.6.1.3.

**5.6.1.1. Installations with tensioning spring mounted on the safety wire in the landing floor (see figure 13c):**



**Figure 13c**

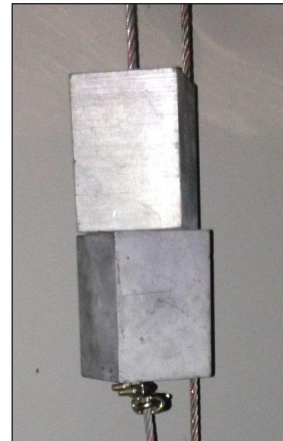
**Step 1** – Go beneath the bottom landing floor platform. Uncoil the coiled safety wire end and fix the existing tensioning in the spring with 2 plastic cable ties. Then remove the two wire rope locks fixing the tensioned spring and remove the spring from the safety wire – Leave the safety wire rope hanging free with no clamping.

**Step 2** - Climb up on the platform above the bottom landing platform. Position yourself in close front of the lift fence, and with a solid body position grab the hanging safety wire with a gloved hand, hold tight with arm angled so it's possible to perform a fast vertical hard jerk upwards – Then execute a fast hard jerk in upwards direction.  
If the safety wire is arrested by the fall arrest device BSO during the fast hard jerk, the BSO is fulfilling its functioning and you continue directly to following step 3. – If BSO doesn't arrest it's necessary to Lock Out the installation immediately until an authorized technician approve the use of the installation again!

**Step 3** – If the BSO arrested the safety wire when executing the hand jerk, drive the cabin up ½m above bottom landing platform, and descend it manually from that position until you are sure the cabin is hanging in the safety wire. Then go down beneath the bottom landing platform and mount the tension spring again with the two wire rope locks and remove the plastic cable ties, so the tension spring is pulling in the safety wire. Then finalize by coiling up the end of the safety wire and secure the coiling with three plastic cable ties, so the bottom mounting is according to figure 13c again.

**Step 4** – Re-establish the BSO by unlocking it, and drive cabin to the bottom landing floor – Be aware, it might be necessary to ascend the cabin a little in order to release the locked BSO.

**5.6.1.2. If the safety wire is installed with counterweights beneath the landing floor (see figure 13d):**



**Figure 13d**

**Step 1** – With the cabin placed in parking position by the bottom landing platform floor, climb up to the platform above the landing floor platform. With a solid body position in front the fence you grab the hanging safety wire with a gloved hand. Then hold tight on the safety wire and perform a fast hard lateral heave towards your body. If the safety wire is arrested by the fall arrest device BSO during the fast hard heave, the BSO is fulfilling its functioning and you continue directly to following step 2. – If BSO doesn't arrest it's necessary to Lock Out the installation immediately until authorized technician approve use of the installation again!

**Step 2** – Climb back down on the bottom landing platform. Then re-establish the BSO by unlocking it – Be aware, it might be necessary to ascend the cabin a little in order to release the locked BSO.

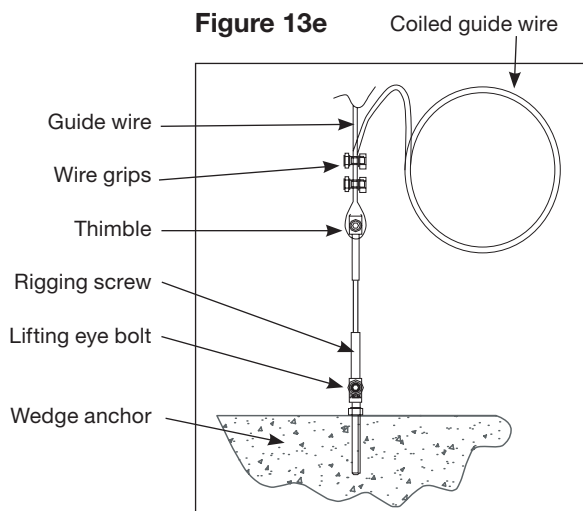
### 5.6.1.3. Installations with tensioning spring mounted on the safety wire in the basement or beam using a rigging screw (see figure 13e):

**Step 1** – Go beneath the bottom landing floor platform. Remove the tension from the spring by loosening the rigging screw. Release the safety wire rope thimble from the rigging screw attachment – Leave the safety wire rope hanging free with no clamping.

**Step 2** - Climb up on the platform above the bottom landing platform. Position yourself in close front of the lift fence, and with a solid body position grab the hanging safety wire with a gloved hand, hold tight with arm angled so it's possible to perform a fast vertical hard jerk upwards – Then execute a fast hard jerk in upwards direction. If the safety wire is arrested by the fall arrest device BSO during the fast hard jerk, the BSO is fulfilling its functioning and you continue directly to following step 3. – If BSO doesn't arrest it's necessary to Lock Out the installation immediately until an authorized technician approve the use of the installation again!

**Step 3** – If the BSO arrested the safety wire when executing the hand jerk, drive the cabin up ½m above bottom landing platform, and descend it manually from that position until you are sure the cabin is hanging in the safety wire. Then go down beneath the bottom landing platform and mount the tension spring again on the rigging screw. Then finalize by tightening the rigging screw to tension the spring back to the original setup up so the bottom mounting is according to figure 13e again.

**Step 4** – Re-establish the BSO by unlocking it, and drive cabin to the bottom landing floor – Be aware, it might be necessary to ascend the cabin a little in order to release the locked BSO.



## 5.7 Wire ropes

a) Follow the 3 steps below to check that the traction and safety wire ropes are not tangled with tower internals.

a.1) Open the top hatch and look upwards in search of any unusual trajectory deviation of the traction and safety wire ropes.

a.2) Close the top hatch and ascend with the service lift to the following platform.

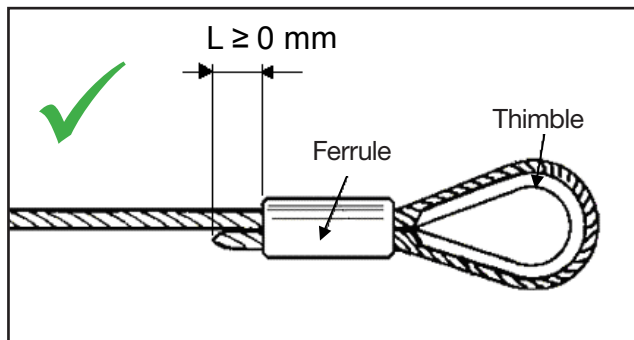
a.3) Repeat steps a.1) and a.2) until the complete length of the wire ropes is inspected.

a.4) If any wire rope is found tangled, climb up the ladder and untangle the wire rope by hand. Then, inform AVANTI.

b) During operation, check that the traction and safety wire ropes pass freely through the traction hoist and the fall arrest device.

c) Once the lift is at the top platform, inspect the top tower beam and the wire rope attachments.

d) Check that the length (L) between the top end of each wire rope and its ferrule is equal to or more than 0 mm.



## 5.8 Wire ropes after an unusual event



*After any unusual event (such as a tower jerk due to the wind turbine going into emergency mode) check that the traction and safety wire ropes have not got tangled with tower internals.*

### 5.8.1 At the bottom platform

If the service lift is placed at the bottom platform when the unusual event occurs, follow the steps below.

a.1) Open the top hatch and look upwards in search of any unusual trajectory deviation of the traction and safety wire ropes.

a.2) Close the top hatch and ascend with the service lift to the following platform.

a.3) Repeat steps a.1) and a.2) until the complete length of the wire ropes is inspected.

a.4) If any wire rope is found tangled, climb up the ladder and untangle the wire rope by hand. Then, inform AVANTI.

b) Check that the length (L) between the top end of each wire rope and its ferrule is equal to or more than 0 mm.

### 5.8.2 At the top platform

If the service lift is at the top platform when the unusual event occurs, follow the steps below.

a) From the platform look downwards through the platform hole in search of any unusual trajectory deviation of the traction and the safety wire ropes.

b) Enter the lift and descend to the following platform.

c) Exit the lift and repeat steps a) and b) until the complete length of the wire ropes is inspected.

e) If any wire rope is found tangled, climb down the ladder and untangle the wire rope by hand. Then, contact AVANTI.