

Amendment to Avanti Service Lift User's manual, Model Shark UL

This amendment replaces chapter 5 in the existing manual of the Avanti service lift, Model Shark installed with Tractel Greifzug BSO fall arrest device.

5. Daily inspection

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 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 not 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!

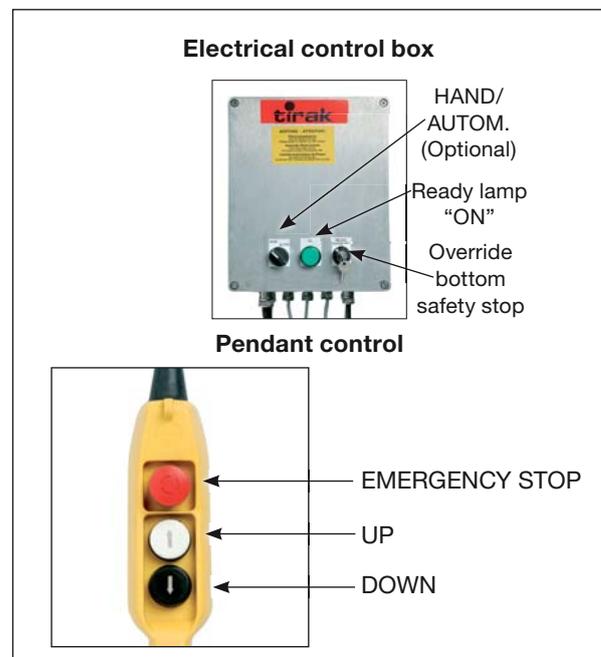
*If any faults occur during work,
- stop working,
- if required secure the workplace and
- rectify the fault!*



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 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.

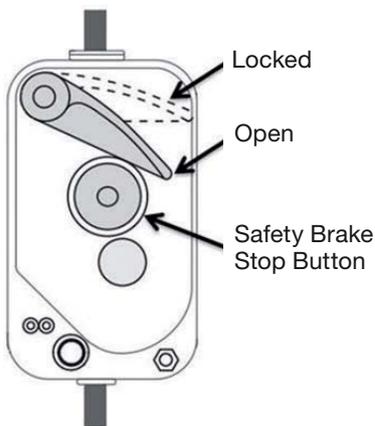
5.5 BSO fall arrest device

The following daily overspeed test is mandatory:

5.5.1. Test of safety BSOE (Inside cabin).

During operation, regularly monitor the rotation of the centrifugal mechanism by looking through the window.

Step 1 – If locked, reset the BlocStop to ensure the jaws are open by pulling downward on the reset lever. Open the upper hatch to prevent rubbing the wire rope against the edges.



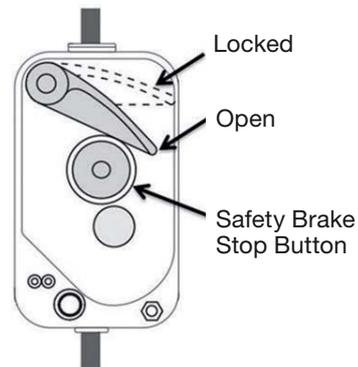
Step 2 – Technician 1 wearing appropriate PFPE climbs up to the closest safe position above the lift that allows standing firmly and safely to perform this test.



Step 3 – With a solid body position technician 1 grabs the hanging safety wire with gloved hands. Then holds tight on the safety wire and performs a fast hard lateral heave towards his/her body.



Step 4 – The BlocStop should lock onto the safety wire. Technician 2 checks so and reset the Bloc-Stop again by pulling downward on the reset lever.



Step 5 - Repeat steps 3 and 4 for a total of 3 tests. If the unit does not pass all 3 tests, the unit must be locked out for repair. If the unit passes all 3 tests, go to step 6.



Step 6 - Move up the cabin lift 0,5 mts above the landing platform by pressing the up button on the pendant control.

Step 7 - Engage the BSO manually by pressing the safety brake stop button.

Step 8 - Descend the cabin lift manually by pulling up the motor brake lever to check that the lift is being held by the BSO and the safety wire.

One of the following cases will occur:

- The lift is held by the BSO. Move up the cabin lift a few centimeters by pressing the up button of the pendant control, manually open the fall arrest device BSO by pressing the fall arrest device lever down until the device disengages and descend the cabin lift by pressing the down button of the pendant control until the bottom platform.
- The lift is not held by the BSO. Descend the lift to the landing platform and Lock Out the installation immediately until an authorized technician approves the use of the installation again.



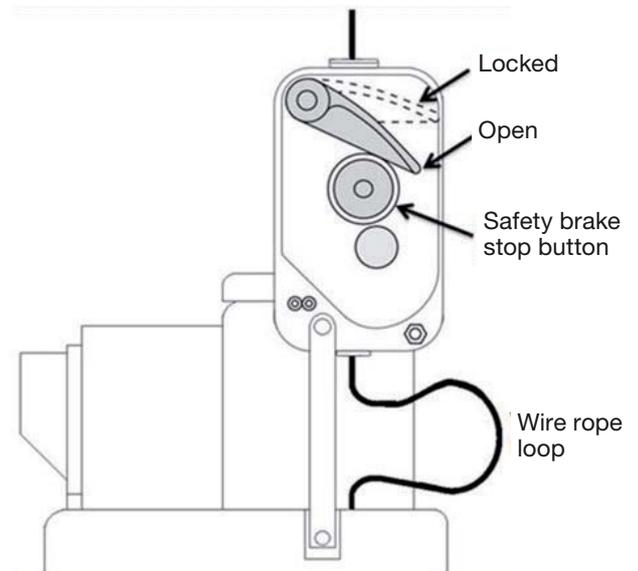
NOTE - If the safety cable does not appear to have enough travel to perform the rapid pull, adjust the spring below the deck so that the spring has an approximate resting state length of 2.5". This will only need to be done once per tower, if at all. Refer to the Avanti User's and Installation Manual page 57.



This operation shall only be performed by personnel qualified for lift inspection or maintenance tasks.

5.5.2 Test of drive BSO (Outside of cabin)

Step 1 – Ensure that the BlocStop on the drive wire is reset and open. While inside workcage on floor, turn the selector switch to manual. Place the key into the manual override switch, turn and hold towards the right, while pressing and releasing the down button on the pendant 3 times. This will create the necessary slack in the drive wire above the lift.

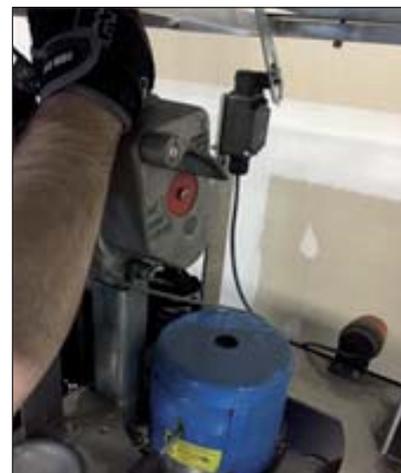


Step 2 – Person wearing appropriate PPE climbs roughly 1/4 of the way through the upper hatch so they can reach the drive cable. With a gloved hand, reach above the BlocStop and push the excess wire down so that a loop of wire is moved between the BlocStop and the motor.



Step 3 – With a gloved hand, push on the loop of wire so that it moves rapidly upwards through the BlocStop. The BlocStop should lock onto the drive wire.

Step 4 – Reset the BlocStop and repeat steps 2 & 3 for a total of 3 tests. If the unit does not pass all 3 tests, the unit must be locked out for repair. If the unit passes all 3 tests, go to step 5.



Step 5 – If locked, reset the BlocStop to ensure the jaws are open by pulling downward on the reset lever. Move up the cabin lift 0,5 mts above the landing platform by pressing the up button on the pendant control.

Step 6– Engage the BSO manually by pressing the safety brake stop button.

Step 7 – Descend the cabin lift manually by pulling up the motor brake lever to check that the lift is being held by the BSO and the safety wire.

One of the following cases will occur:

- The lift is held by the BSO. Move up the cabin lift a few centimeters by pressing the up button of the pendant control, manually open the fall arrest device BSO by pressing the fall arrest device lever down until the device disengages and descend the cabin lift by pressing the down button of the pendant control until the bottom platform.
- The lift is not held by the BSO. Descend the lift to the landing platform and Lock Out the installation immediately until an authorized technician approves the use of the installation again.

5.6 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.

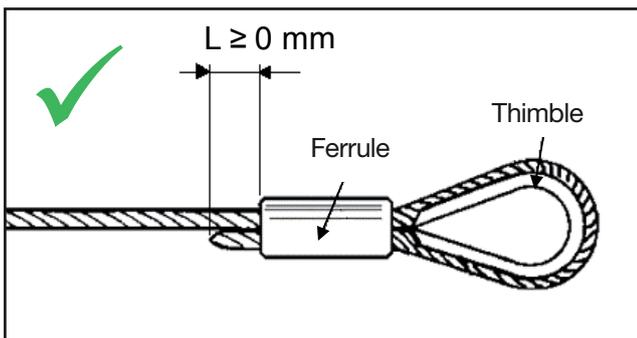
a.3) Repeat steps a.1) and a.2) until the complete length of the wire ropes is inspected.

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.



5.7 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.

5.7.1 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.

5.7.2 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.