Instructions for use and maintenance

(Translation of the original instructions for use and maintenance, AWA)

Logging LongLine

Mod. TLP

CE

EC directive for machines 2006/42/CE

§ 1 (1) d), annex I, art 1.7, 1.7.4, 1.7.4.2

EASA CS-27./29.865 / EC Decision 2014/018/R, AMC1 SPO.SPEC.HESLO.100

Use

Correct use

The TLP is THE logging long line. It is employed for the lifting of loads, in combination with a shock absorber and a swivel electrical lifting hook. (see figure on the right).

Hooking of cargo onto the secondary cargo hook is done manually, while cargo release is electrical. The correct slinging of the load is obtained by using a suitable slinging point on the cargo or by employing suitable slinging equipment.

The rope's payload (Working Load Limit, WLL) corresponds to both the helicopter's maximum carrying capacity and the maximum mass (weight) of the cargo allowed. The indicated payload (WLL) must not be exceeded.

Limits, inappropriate uses and other possible risks can be found below in this AWA or in the general instructions AWA, part 1.

If used in the correct way, the TLP logging longline guarantees safe handling.

It is designed to be used only and exclusively in the above mentioned way, that is, as a lifting device for the external load transport by helicopter.

Disclaimer

With the exception of 3 models, all electrical cargo hooks available on the market (primary, secondary and remote) fail to meet the standards required by EU Council directive n. 2006/42/EC regarding machinery safety, i.e. they have no CE conformity approval.

For lack of an alternative, AirWork & Heliseilerei GmbH (A&H) distributes only cargo hook models by US producer Mechanical Specialties up to weight class 50 kN.

The ropes manufactured by AirWork & Heliseilerei GmbH (A&H) can also be operated with other cargo hook models, nonetheless AirWork & Heliseilerei GmbH (A&H) disclaims all responsibility, guarantees or other liabilities for damage caused by cargo hooks not provided with CE conformity, regardless of producer.

User training

Personnel assigned to using this device must have adequate instruction and training prior to its first use. During the introduction to its use and subsequent in-depth training, particular stress should be placed on gaining a good knowledge of the present instructions for its use and maintenance.

Training has to be repeated at least once a year and proof of this must be demonstrable. Please document the type, amount and the date of training in an appropriate way.

The product and its construction

Design, construction and technical data

The TLP is designed and built to carry the maximum external load possible for the type of intervention and/or for the type of helicopter used, that is, for its corresponding weight class, for example:

- Helicopter mod. AS 350 B3 = max. carrying capacity 1400 kg
- Intended use: Logging (HESLO 3; Annex VII Part-SPO; AMC1 SPO.SPEC.HESLO.100)
- Calculation based on: EASA CS-27./29.865 External Loads
- On delivery, the rope's safety factor clearly exceeds safety factor 8 [-].
- Service life: 2500 h or 6 years; service life of accessories: depending on condition, i.e. must be replaced when deformed or damaged.

Each individual component of the structure is certified and undergoes regular checks (quality assurance) by the producer on delivery and during manufacturing.

The load bearing elements are made of continuous laid high module polyethylene fibres and wrapped with a dirt and water-repellent synthetic strap. The rope's performance is quasi-static (elongation at an Ultimate Load (UL) of 50% = ~ 2%).

The conductor is protected by a synthetic tube and embedded within the load bearing elements (core).

The load bearing elements are enclosed in a 48-plait double braided PES multifil sheathing and a 24-plait braided PA6 monofil cover. Generally, the sheathing is red.

A supplementary short heat shrink tube, which is highly resistant to abrasion and covers the passage between cast end fitting and rope, can be applied on request or according to the purpose the TLP is intended for.

The end fittings are exclusively made of high tenacity NIRO turned round washers (V4A), cast in a PUR end fitting.

The round washers are compatible with swivel joints of 15 kN (bolt diameter 16 mm) or 50 kN (26mm).

Non-cast end fittings are not sufficiently protected and thus may move inside the Goggel casing. This can lead to rope damage, compromised accuracy of the fit between bolt and swivel joint/rope end or to deficiencies in the electrical contacts.

TLP with cast end fitting, suitable for swivel joint/Goggel 14 kN

TLP with cast end fitting, suitable for swivel joint/Goggel 50 kN

Conductor 4 x AWG-16 MIL-STD, 1.23 mm^2 (red- yellow - black – white wires)

Special properties

- The TLP is very stiff to handle and easily penetrates between trees and bushes.
- Its PP monofilament protective sheathing is highly abrasion-resistant and impenetrable.
- The conductor must be well tied to the rope's upper and lower extremities and it reaches an elongation of approximately 3% inside the rope.

For other connections and configurations see DB TLL-TLP_ASSY (www.air-work.com, Equipment)

Labels must not be removed. A product without label cannot be considered safe. If you have any questions, please contact the producer.

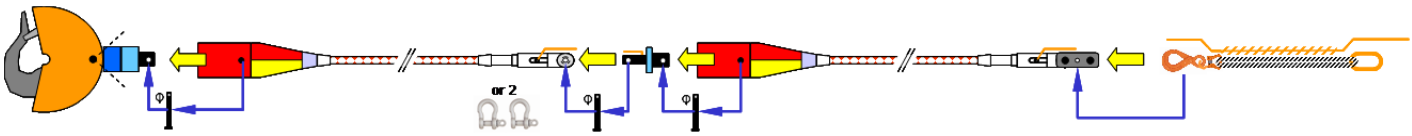
Parts list

After consultation with the producer, the electric conductor can be substituted or reused with a new rope (assembly and disassembly to be carried out by the producer).

Parameters, limit conditions, interfaces

Configurations allowed

Ropes manufactured by AirWork & Heliseilerei GmbH (A&H) are specifically designed for external load transport by helicopter. Every individual component, as well as cargo hooks, swivel joints, Goggel casings and rope extensions is adjusted in accordance with its performance, power supply and function. Thus, they offer a multitude of options for connections, extensions and different operation modes.



One of many possibilities

A&H strongly recommends the use of a shock absorber. See also A&H-SB_2013-1 on www.air-work.com.

For the lifting and transport of loads, it is compulsory to place a low-torque swivel between the rope and the cargo (rule of technology). Without a low-torque swivel, due to load rotation, the rope can be already irreparably damaged during one flight cycle.

The use of other components by other producers, mainly secondary or remote cargo hooks, can compromise the aforementioned characteristics or lead to dysfunctions (see also AWA part 1, "Disclaimer" and "Warranty").

Helicopter service for professional load transport

Prolongations of the maximum life can only be granted after an inspection by the producer. To achieve prolongation, it is compulsive that the operator provides thorough documentation on the runtimes of every rope/low-torque swivel/cargo hook indicating each product's serial number (S/N), the number of minutes/work cycles and, if any, incidents that have occurred.

Loads allowed; usable limits

Interfaces to other systems and/or components of a load lifting device

For more information, also check AWA part 1, technical definitions

Preliminary and start-up procedures

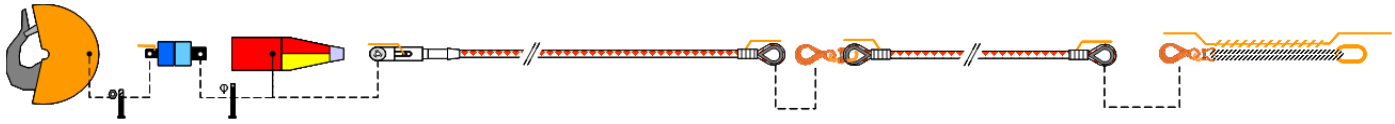
Before starting flying operations, the single components must be assembled and checked to make sure they are perfectly functional (mechanics, electrical system).

Cargo hook: attach the cargo hook to the swivel joint (permanent connection) and secure the bolt.

Rope: connect the rope end holder to the Goggel protective casing (permanent connection).

Rope extensions: make sure that the rope extensions are provided with suitable connecting links.

Shock absorber: make sure that the shock absorber fittings are compatible with the upper rope end and with the primary cargo hook of the helicopter (see ASB issued by the producers).



Assembly and function control before operation starts

Check list for first-time operation

- Do all components have the same performance values (WLL in kN or kg)?
- Are the performance values (WLL in kN or kg) of all components compatible with the helicopter's carrying capacity?
- Do all the connecting links fit with their appropriate connection point (bolt with swivel joint/rope end, safety hook with thimbles, etc.)?
- Do all connections (especially when using double cargo hooks) fit into each other?
- Is there sufficient power and voltage to guarantee safe opening of the cargo hook under load?
- Do the rope lengths meet the requirements (obstacle clearance)?
- Do all accessories of the slinging equipment meet the requirements of the cargo hook manufacturer?
- Are all people involved in the operation adequately instructed regarding the use of the product?

Start-up procedure

Roll out the rope on a flat surface until it is fully extended, then connect the accessories. During this procedure, make sure that it is not tense and that sharp bends can not be formed during lifting. Do not drag the rope over the ground more than necessary**.**
The connection between the TLL and swivel joint/cargo hook must be made according to the swivel joint's/Goggel's instructions for use and maintenance. Before hoisting the rope, please make sure that the cargo hook is placed vertically on the ground by a marshaller who should also guide the rope until the cargo hook leaves ground contact.

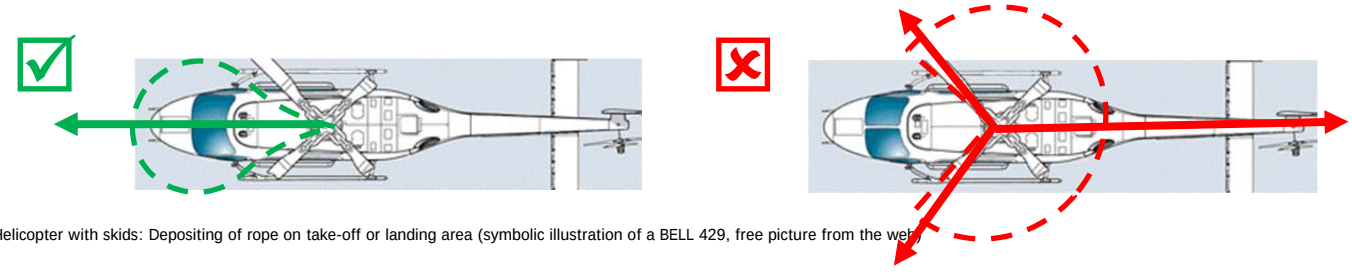
End of operation procedure

On ending the flying operation, an instructed person must help the pilot to deposit the rope on the ground. Usually the rope is deposited in a forward direction, within the pilot's field of vision.

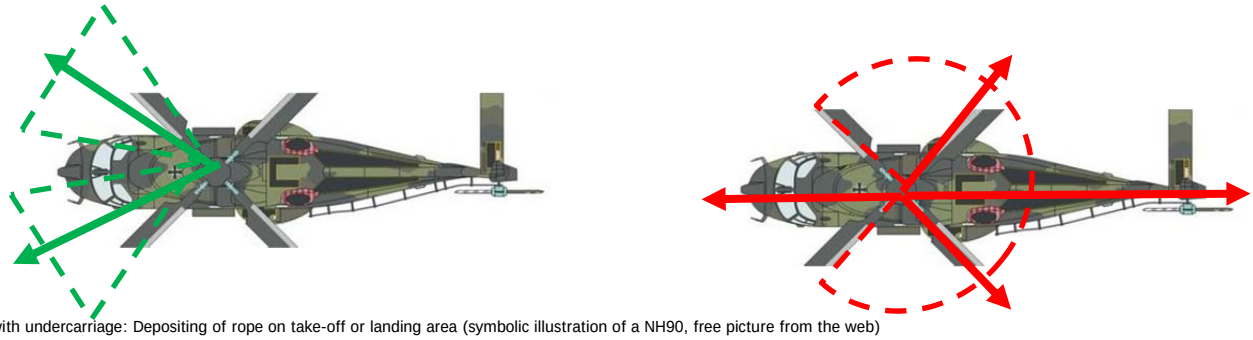
In case the pilot is obliged to deposit the rope without the help of an instructed person, make sure that the landing site is big enough (or sufficiently sloping in a rearward direction) to avoid the rope getting caught under the helicopter (skids, wheels, tail rotor).

Depositing the rope and landing the helicopter on the rope:

- **danger caused by rope nooses when the tail rotor draws near the rope;**
- **rope movement caused by down wash.**
- **be careful with skids and landing gear/undercarriages,**



Helicopter with skids: Depositing of rope on take-off or landing area (symbolic illustration of a BELL 429, free picture from the web)



Helicopter with undercarriage: Depositing of rope on take-off or landing area (symbolic illustration of a NH90, free picture from the web)

Avoid sharp bends, knots or overtorquing of the rope.

Restoration / repackaging of the TLP rope

Before return transport, first check the rope, then wind it up loosely and tie it with tie-down straps or elastic straps. Accessories have to be secured or connected (e.g. safety hook to thimble). Ropes must always be coiled by forming a vertical roll! Prior to storage, make sure the rope is tightly coiled and secured with its straps.

NB

Prior to transport by lorry, hand cart or helicopter and prior to storage, the rope with attached Goggel must be disconnected from the swivel joint/cargo hook, since excessive bending and tension between the rope and swivel joint might damage the cast end fitting. Also check the instructions for use and maintenance of the swivel joint and the Goggel casing.

Coiling ropes

Do not use elastic straps with metal hooks, since they may damage the protective sheathing.

Rule of thumb for calculating the minimum inside diameter of rope rolls:

- Ø rope x 30 = inside Ø of rope roll
- 20 mm x 30 = 600 mm

Advice for coiling ropes
After the first two coils, with the help of the provided elastic strap and the thimble form a little loop. Doing so, the rope end will be stabilised and coiling will be easier.
Follow the rope on the ground while coiling it up, instead of pulling the rope towards you.
When using an automatic coiling device, pay attention not to put excessive strain on the rope.

For more information, also check AWA part 1, technical definitions

Transport and storage

For transport by helicopter or lorry, the rope must be stored coiled onto a coiling and kept far from other equipment which might damage it.

For storage in a warehouse, please let the rope the rope should lie flat and be kept uncovered.

Possible inappropriate uses

(Ways of using the TLM that are inappropriate and for which it is not designed)

Any use that is not in conformity with the regulations (inappropriate use) of the TLM or its individual components can lead to evident or hidden damages to the same and, therefore, compromise its safety characteristics. In the event of inappropriate use, the producer disclaims all responsibility.

Several examples of inappropriate uses:

RESTRICTION: The rope's maximum service load must be exceeded.

Be careful to avoid other possible risks

The following factors could lead to dangerous situations and, therefore, must absolutely be avoided or supervised by a marshaller or another skilled person:

For more information, also check AWA part 1

Residual risk

All types of ropes (textile and steel) run the residual risk of internal damage that cannot be seen from the outside. Hence, handling of such ropes requires special attention.

Maintenance and repair

Also check and read AWA part 2 (maintenance: steel) and 3 (maintenance: textiles)

Engineering & manufacturer

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EASA Part 21 G POA (CH.21.G.0022)

Conditions for product use

This product has been manufactured in compliance with EC-machinery directive 2006/42/EC, § 1 (1) d).

These instructions (AWA), in accordance with machinery directive 2006/42/EC, annex I, sections 1.7.4.1 and 1.7.4.2, as well as the EC declaration of conformity in accordance with 2006/42/EC, annex II, are an integral part of this product and must be compiled in the user's or a generally accepted common language. However, only the original German version is legally binding. In absence of valid instructions for use and maintenance (AWA) or without adequate training prior to use of the product, the latter cannot be considered safe.

Gaining a good knowledge of the present AWA, including all its subparts, must be part of user training carried out by the producer, its authorised representative (qualified person) and the person responsible for training in the user's company.

In the case of lending, demonstration, display, sale, discount trading or user training, these instructions for use and maintenance (AWA) must be enclosed/attached.

Picture credits

Question to the persons responsible for training and work materials

Have you read, understood and given instructions on parts 1 to 4?

A&H Services offers an extensive inspection and testing service for all its in-house products.

"Agents' corner" (our authorised traders; for a list see www.air-work.com, Strategic Partnership)

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