Instructions for use and maintenance, part 4

(Translation of the original instructions for use and maintenance (AWA), part 4)

Medium LongLine for transport

Mod. TLM

CE

EC machinery directive 2006/42/EC

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

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

Use

Correct use

Lifting of loads, in combination with a shock absorber and a swivel lifting hook. (see figure on the right).

Hooking and unhooking of cargo onto the secondary cargo hook is done manually. 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 TLM 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.

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.

Your TLM (description of the single components)

Design, construction and technical data

The TLM 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. working load limit (WLL) = 1400 kg
- Intended use: general external transport operations, **no logging** (HESLO 1, 2, 4 and 5; Part-SPO annex VIII; AMC1 SPO.SPEC.HESLO.100)
- Calculation based on: EASA CS-27./29.865 External Loads and related articles.
- On delivery, the rope's safety factor clearly exceeds safety factor 8 [-].
- Service life: 2000 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 TLM rope's performance is quasi-static (elongation at WLL = ~ 0.5%).

The load bearing elements are enclosed in a 32-plait braided polyester (PES) sheathing available in the colours red, yellow, green, blue or grey.

The thimbles are made of high quality, high tenacity, stainless steel V4A and welded at the joint.

The TLM is equipped with an LHW safety hook and a CW Connex link, grade 10.

TLM with thimbled rope end (NIRO thimble).

Special properties

- The TLM is a little stiffer to handle than the TLK (previous version of Kernmantel rope) or the TLDS (new version of Kernmantel rope) models.
- However, the TLM rope is considerably more ductile than the transport lines with electrical hook release such as TLL and TLP.
- The rope isn't rounded to the touch and may even seem a little knobby. This is not a defect.
- Possible unevenness of the protective sheathing is not a defect either

For other configurations and connections see 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.

Parameters, limit conditions, interfaces

Configurations allowed

Ropes manufactured by AirWork & Heliseilerei GmbH (A&H), including all their single components, are specifically designed for external load transport by helicopter.

Load element (SLE1) | Safety hook with Connex link | Rope (symbolic illustration) | Thimble | Shock absorber (VM-DP_xx_1.5)

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

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).

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

Rope: connect the rope end with a Connex link and a hook (permanent connection).

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.

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 LLD components compatible with the helicopter's maximum carrying capacity?
- Do all the connecting links fit with their appropriate connection points (safety hooks with thimbles, etc.)?
- 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 cannot be formed during lifting. Do not drag the rope over the ground more than necessary.

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.

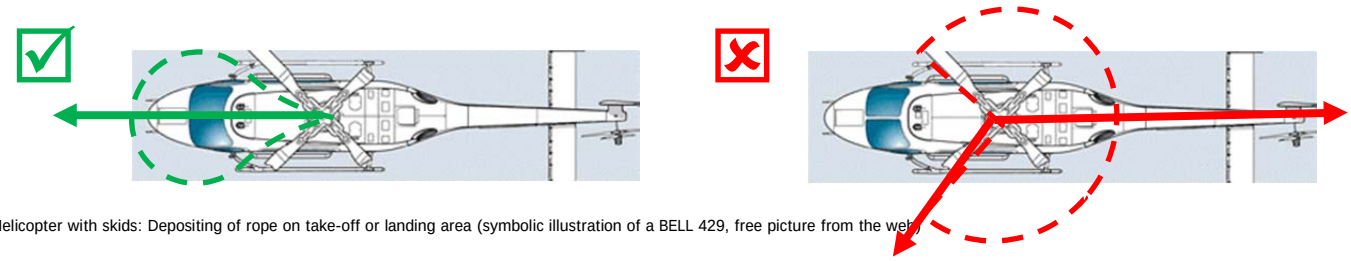
End of operation procedure

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.

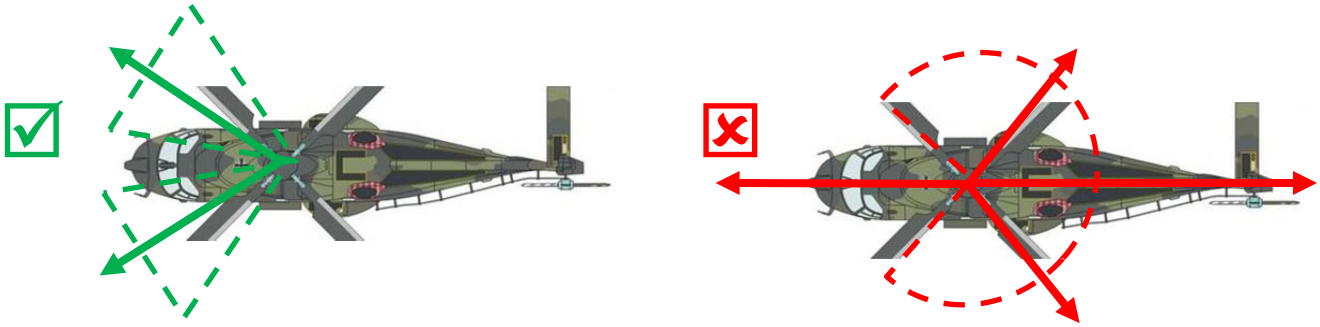
In case the pilot is obliged to deposit the rope without the help of an instructed person, make sure that the landing site is big enough (or sufficiently sloping in a rearward direction) to avoid the rope getting caught under the helicopter (skids, wheels, tail rotor).

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 TLM rope

Before return transport, first check the rope, then flake it loosely as you would for an alpine rope and then tie it with one of the rope's ends. Accessories have to be secured or connected (e.g. safety hook to thimble). See illustration.

Manual flaking of the rope

Tying of the flaked rope with one of its ends

Do not use elastic straps with metal hooks, since they may damage the protective sheathing or the bearing element.
(This refers to all types of ropes!)

Transport and storage

During transport by helicopter or lorry, the rope must be stored in a bag, case or hung up on a hook and kept far from other equipment which might damage it.

For storage in a warehouse, please let the rope hang loose from a hook or place it in a cardboard box.

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 TLP 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: NO LOGGING. The rope's maximum service load and its type of construction are NOT designed for logging operations.

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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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?

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