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ESPN-R HOIST SAFETY PROMOTION

HOIST OPERATOR TRAINING GUIDE V1.0 FEBRUARY 04, 2021



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ESPN-R HOIST SAFETY PROMOTION WORKING GROUP

Preamble:

Helicopter Hoist Operations are considered as a full crew mission concept where responsibilities and leadership change within the crew throughout the completion of the mission.

During the flight, Pilots, Hoist Operators, Rescuers, Medical Personnel and other human external cargo (HEC) are identified as a group of interdependent individuals working together to complete a specific task. The Crew, considered as a team, must depend on each other's knowledge, skills, and abilities to achieve the same goal.

This document, which is focused on the Hoist Operator, aims to highlight on the different training phases of the Hoist Operator from ab-initio to Senior Trainer. Considering the interactions with other crewmembers and specificities of the mission, the Hoist Operator training philosophy cannot be limited to the use of the hoist system only. It must cover essential aspects of Helicopter Hoist Operation including, but not limited to, Crew Resources Management, Airmanship etc...

This industry guide does not contradict the AIR OPS regulation (EU) 965/2012, it is furthermore a recommended guideline to create a competence based training scenario from ab initio to senior HHO trainer. This training guide is not legally binding; it was developed by a group of subject matter experts and therefore it should be regarded as a role model.

Helicopter Hoist Operations are very challenging and bear certain risks. In order to enhance safety and efficiency, a proper training of the Hoist Operator shall be promoted and stimulated within the industry.

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1. INTRODUCTION

The aim of this document is to serve as industry guidance for Hoist Operator Technical Crew Member based on the existing regulation (EU) 965/2012 on Air Operations in order to clarify (but not limited to) Hoist Operator prerequisites, training, checking and assignment into duties.

Despite containing a lot of information, “Regulation (EU) 965/2012 on air operations” can lead to differences in interpretation creating an unbalanced level of standardization within Europe. Moreover, this phenomenon is enforced because EASA defines Hoist Operator Technical Crew Member “training and checking” in an AMC (AMC1 SPA.HHO.130 (f) (1)) without license requirement.

From this statement the ESPN-R Hoist Safety Promotion working group would like to highlight the significant need to enrich this growing market of Helicopter Hoist Operations (HEMS, off shore wind energy, etc.) and address a potentially increasing number of occurrences, by creating a hoist operator training guide in order to increase safety in hoist operations of all types. Furthermore, another aim is to clearly define the duties and responsibilities of the Hoist Operator Technical Crew Member through the creation of a harmonized Hoist Operator Training Guide.

This recommendation may have an impact on operators who are involved in helicopter hoist rescue operations, but also operators that are perform hoisting at offshore wind turbines and also maritime-pilot transfer operations, if not complying yet with the herein proposed training recommendations. National authorities, OEM (*Original Equipment Manufacturers*) and ATO (*Aviation Training Organization*) might be associated to this initiative to define clearly training and checking requirements.

In addition, in order to avoid confusion with other ESPN-R working groups, this document will only cover Hoist Operator Technical Crew Member prerequisites, training, checking and assignment into duties and will not cover the peculiarities of HEMS and NVIS Technical Crew Members. However, the Hoist Safety Promotion working group recommend making the exchange of information between the different working groups easier.

In conclusion, by promoting advanced, improved and accurate sets of skills for the Hoist Operator Technical Crew Member it will necessarily improve safety and efficiency in Helicopter Hoist Operations.

Note: For operators with proven/existing experience: the grandfathering of standards need to be carefully considered. For newly, to be trained hoist operators the changed guidelines enable more opportunities to maintain and obtain justified and documented permission of the respective operation.

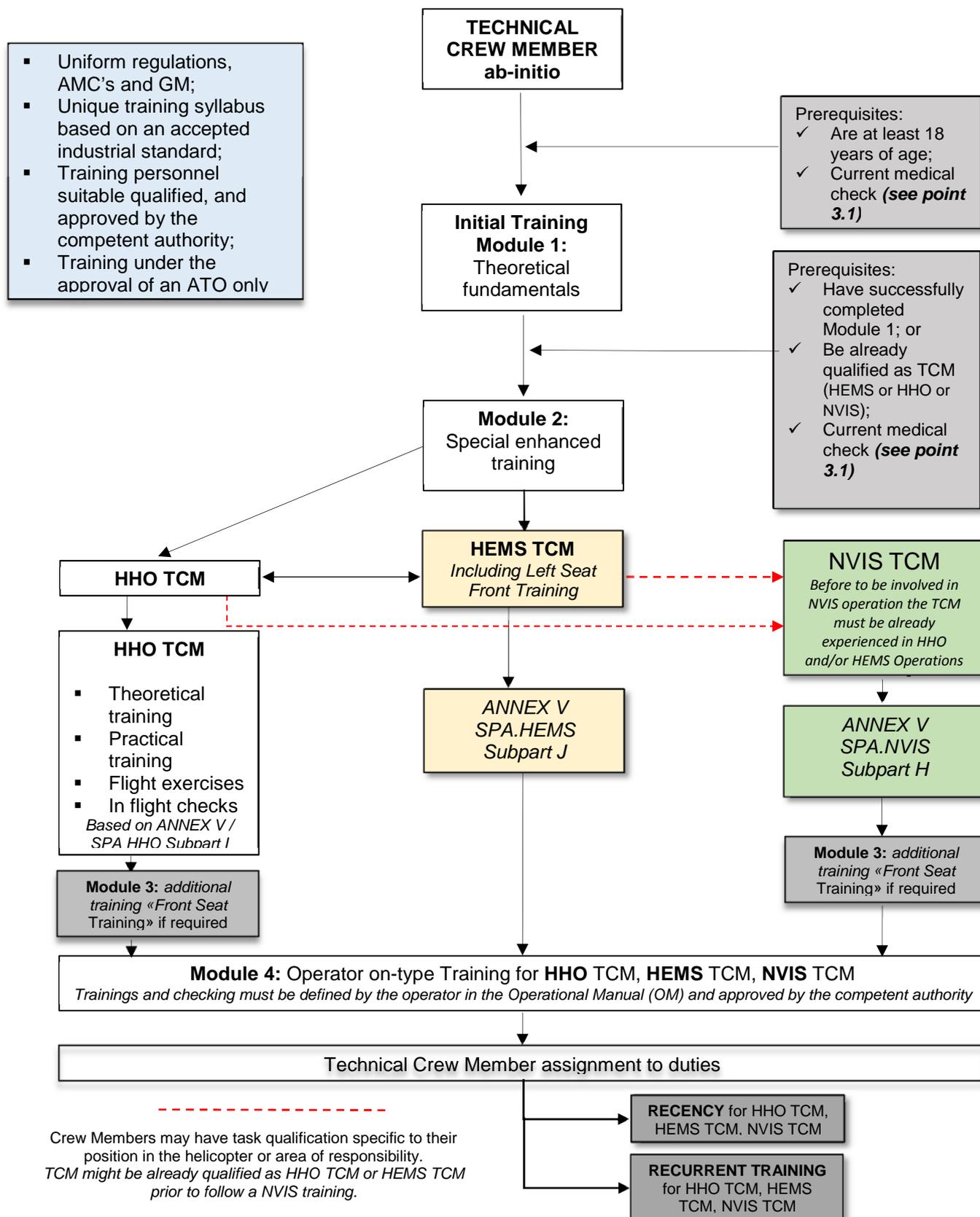
A “grandfathering right” is foreseen to be accepted to experienced Hoist Operators with the target to being not detrimental to the overall safety target. It is to be evaluated on a case-by-case basis and credits should be permitted on basis of proportionality in considering several criteria.

2. SOURCES

- (EU) 965/2012 on Air Operations;
- BG_Verkehr_DGUV_I_214-911
- BAZL Flughelfer Syllabus;

3. INITIAL HELICOPTER TECHNICAL CREW MEMBER (ab-initio TCM)

Considering the already existing EASA set of regulations, the ESPN-R Hoist Operation Safety Promotion group suggest and recommend a more effective “modular” way to train ab-initio TCM.



- SPA.HHO.130 (a): The operator shall establish criteria for the selection of flight crew members for the HHO task.
ESPN-R:” The operator shall establish criteria for the selection of the Technical Crew Member as for Flight Crews Members”.
- Module 3: For single Pilot operation only and according to the aircraft configuration. If required, this module must be followed as per HEMS Technical Crew Member training (AMC1 SPA.HEMS 130(e)).
- A credit-program may be developed by the operator for Technical Crew Member. According to the previous working experience, it might be possible for the ab-initio TCM to validate parts of the module 1. Also, concerning the HHO Technical Crew Member, a “Grand Father Law” program might be developed for already experienced Hoist Operators.

3.1 Prerequisites for ab-initio Technical Crew Member

In order to be accepted in an initial HHO TCM training the candidate shall fulfil the following requirements:

- (1) Are at least 18 years of age;
- (2) Holds a medical check in accordance with medical requirements, e.g. Medical class 2 or occupational medical examination (per local requirements, e.g. G41 for German standards → [link](#))

3.2 Module 1 - Initial Technical Crew Member Training – ref: ORO.TC.115

The definition of module 1 is developed considering a European ab-initio student without any experience neither in helicopter operation nor in aviation in general.

Following the (EU) ORO.TC.115, the ESPN-R suggest common Guidelines, creating by this way a shared basis of theoretical fundamentals knowledge for all TCM prior to be involved in more advanced training in HHO, HEMS and NVIS.

The responsibility to provide the training belongs to the Operator. However, the ESPN-R recommends the use of third parties (i.e. an ATO certified for this type of training) to guarantee a high level of standardization.

Prior to beginning the Basic Hoist Operator (or HEMS, or NVIS) training the ab-initio Technical Crew Member must be trained on the following topics:

Theoretical Fundamentals:

Training should include Human Factors subjects such as mission preparation, risk assessment and mitigation, briefings / debriefings, procedures and check lists, verifications (checks, double checks and cross-checks), using proper tooling, attitudes: how to avoid risk taking, banalization of violations, team pressure (clannish structure), and perhaps basic physiological factors (e.g. involved in being afraid of heights, spinning effects), occurrence reporting, etc.;

 **Module 01 - Theoretical Fundamentals, Initial Technical Crew Member Training:**

| Module 1 ¹ | Topics to be covered | Contents (not limited to) | Guideline for recommended duration of training | References |
|-----------------------|--|---|--|---|
| Module 1.1 | Basic airmanship and aviation basic knowledge | <ul style="list-style-type: none"> • General aviation theory (<i>including aviation weather</i>); • Helicopter, theory of flight; • Aviation terminology; • Aviation regulations; • Duties and responsibilities required of TCM. | 40 hours | Regulation (EU) 965/2012 on air operations AMC1 ORO.TC.115 (1) |
| Module 1.2 | Communication and Crew Resources Management | <ul style="list-style-type: none"> • Communication between TCM and flight crew members including common language and terminology; • Relevant CRM elements of ORO.FC 115 and 215. | 20 hours | Regulation (EU) 965/2012 on air operations AMC1 ORO.TC.110(a) |
| Module 1.3 | Safety on helicopter including firefighting and smoke training | <ul style="list-style-type: none"> • Individual protection (PPE); • The typical danger area of helicopter; • Safety on board; • In flight hazards; • The classification of fires and the appropriate type and techniques of application of extinguishing agents, the consequences of misapplication, and of use in a confined space; • The general procedures of ground-based emergency services at aerodromes. | 6 hours | Regulation (EU) 965/2012 on air operations AMC1 ORO.TC.115 (2) |
| Module 1.4 | Aero-medical aspects of the flight and first aid | <ul style="list-style-type: none"> • Physiological effects of flying; • Instruction on first aid and the use of first-aid kits. | 6 hours | Regulation (EU) 965/2012 on air operations AMC1 ORO.TC.115(6) |
| Module 1.5 | Emergency training and use of | <ul style="list-style-type: none"> • Emergency egress; • Reaction to emergencies involving fire and | 8 hours | Regulation (EU) 965/2012 on air operations |

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| | emergency equipment | smoke and identification of the fire sources. | | AMC1 ORO.TC.115 (2) |
| Module 1.6 As required for assignment into duty | Survival training appropriate to the type and area of operation | <ul style="list-style-type: none"> • Sea; • Mountain; • Polar; • Jungle; • Desert. | / | Regulation (EU) 965/2012 on air operations AMC1 ORO.TC.115 (3) + (5) |
| Checks | Theoretical fundamentals training for Technical Crew Member is validated after completion of a written test. | <ul style="list-style-type: none"> • Multiple-choice Questions: 100 questions covering the different topics. 75% of correct answers to pass the exam. | 01:30 | Regulation (EU) 965/2012 on air operations AMC1 ORO.TC.110 (4) + ESPN-R Proposal |

¹Elements of training that require individual practice may be combined with practical checks.

 **Initial personal airborne evaluation:**

In order to familiarize the trainee, a minimum of one flight shall be performed to evaluate how the ab-initio TCM candidate is behaving in flight.

| | Topics to be covered | Contents (not limited to) | <i>Guideline for recommended duration of training</i> | <i>References</i> |
|---------------------|---|--|---|---|
| personal evaluation | The aim of the flight is to assess the initial capabilities of the ab-initio TCM. | <u>Assess:</u> <ul style="list-style-type: none"> • Potential motion sickness; • Fear of heights; • Vertigo; • Basic airmanship. | 1-2 hours in different flight | N/A Company internal evaluation/recruitment process, if applicable |

Trainers:

The Initial TCM theoretical fundamentals training shall be provided by an experienced and qualified Technical Crew Member approved by the operator.

The ESPN-R Hoist Safety Promotion working group suggest to clarify this point adding in the actual set of standards a dedicated “Trains the Trainers” for Technical Crew Member. See Annex 01.

Prior to be involved as Instructor for the company the Hoist Operator will have to be evaluated considering several criteria.

Recommended criteria to become a Hoist Operator Instructor (Annex 01):

- Passed annual company assessments;
- Passed CRM trainer course;
- Passed a teaching (theoretical) and training skills (practical) course;
- Have **five years of full time experience** in the operator specific types of hoist operation;
- Have successfully performed minimum **500 hoist (HEC) Hoist⁶ Cycles** as described in this document.

3.3 Initial Helicopter Hoist Operation Technical Crew Member

This chapter will cover only HHO TCM but the same process could be applied to HEMS TCM and NVIS TCM.

3.4 Prerequisites for ab-initio Helicopter Hoist Operations Technical Crew Member

- Have successfully completed the module 1, “Fundamentals Training” initial Technical Crew Member; or
- be already qualified as “HEMS TCM” (with a valid Initial TCM qualification); and/or be already qualified as “NVIS TCM” (with a valid Initial TCM qualification);
- Holds medical check in accordance with medical requirements to EASA Air OPS 965”, e.g. Medical class 2 or industrial medical check (per local requirements, e.g. G41 for German standards → [link](#))

3.5 Module 02 - Specialized Enhanced Training² “Basic Hoist Operator Technical Crew Member” – SPA.HHO.130(f)(1)

After completion of the initial TCM training the ab-initio Hoist Operator must follow a basic Hoist Operator training provided by the operator or an ATO certified for this type of training. The ESPN-R recommend the use of third parties to guarantee a high level of standardization.

If available, the ab-initio HHO TCM could perform part of the initial flight activity on hoist operation simulation devices like procedural tower, HHO dynamic simulator or using Virtual Reality. It may increase safety and efficiency and will reduce environmental impact and training costs.

Whatever could be the Hoist Operation simulator it shall be assessed (a performance based approach is recommended) by the organization / operator in order to provide credits to the training.

This training program is not helicopter “type” related and can be provided on any certified helicopter fitted with a hoist as per SPA.HHO 110 & AMC1 SPA.HHO.110 (a).

Also ESPN-R recommend to not perform combined activities with an HHO ab-initio pilot (it could lead to negative/non-efficient training) and that the full training program shall be ended within 2 months (training efficiency).

After completing the “Specialized Enhanced Training” the trainee will be released with a basic Hoist Operator qualification and will be cleared to proceed through the Operator Specific Training (on helicopter type and mission/procedure/equipment specifics).

For the flight training syllabus see ANNEX 02.

² “Specialized Enhanced Training”, state for: HHO or HEMS or NVIS Technical Crew Member.

Training objectives:

The students will be provided with the information and instructions necessary to safely perform basic hoist operations. The students will receive theoretical and practical knowledge about the optional equipment as described below. To operate the hoist in accordance with the requirements of the appropriate flight manual and hoist manufacturer’s operator manual, when applicable.

The students will be familiar with the hoist operation procedures and be able to use it practically under normal and emergency/abnormal conditions.

The student will be able to perform, NHEC, single (and double) HEC lifts, in clear and confined areas.

Note:

Existing regulation (EU) 965/2012 on Air Operations (SPA-HHO.130(d)) specifies that a hoist cycle shall include a transition to and from the hover. Ideally, one hoisting down and up of the hook with either delivering or picking up a person or an object to or from a surface (land, sea, deck, raft etc...).

Module 02 - Specialized Enhanced Training – Basic Hoist Operator Technical Crew Member:

| Module 2 ³ | Topics to be covered (not limited to) | Contents (not limited to) | <i>Guideline for recommended duration of training</i> | <i>references</i> |
|-----------------------|---|--|---|---|
| Theoretical | <ul style="list-style-type: none"> • Limitations; • Hoist system (advance or general description); • Aircraft and equipment preparation; • Normal and emergency procedures; • Inter-communication and radio-equipment; • Safety during hoist operation; • Risk assessment method; • Situation awareness; • CRM and crew coordination concept specific to HHO; <p>Hoist system description will be done on type (advance) or not on type (general description).</p> | <ul style="list-style-type: none"> • General aircraft limitations; • Effect of the movement of personnel on the center of gravity and mass during HHO; • Effect of the movement of personnel on performance during normal and emergency flight conditions; • Fitting and use of the hoist; • Personal Protective Equipment (<i>PPE</i>) specific to HHO; • Preparing the helicopter and hoist equipment for HHO, • The duties and responsibilities in the HHO role; • Techniques for guiding Pilots over HHO sites; • Techniques for handling HHO passengers; • Area reconnaissance ; • Normal hoist procedures; • Knowledge of emergency hoist equipment; • Hoist system emergency procedures (i.e. mechanical, electrical, etc.); • Abnormal situations (i.e load spinning and/or swinging, loss of communication, etc); | 30 hours | <p>Regulation (EU) 965/2012 on air operations AMC1 SPA.HHO.130(f)(1)(c) + ESPN-R PROPOSAL</p> |

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| | | <ul style="list-style-type: none"> • Aircraft malfunctions and emergency procedures; • Safety around the helicopter (<i>Danger of static electricity discharge, Awareness of specific dangers relating to the operating environment, collision avoidance</i>); | | |
| Practical | <ul style="list-style-type: none"> • Hoist system; • Aircraft and equipment preparation; | <ul style="list-style-type: none"> • Hoist system description on real aircraft; • Handling of hoist control; • Hoist pre-flight checks; • Handling of PPE; • Cabin and equipment preparation; • Operation of inter-communication and radio equipment; | 6 hours | ESPN-R PROPOSAL |
| Flight A draft syllabus for the flight activity is available for example in ANNEX 02 | <p align="center">-Day operations only- -On-shore operations only-</p> <ul style="list-style-type: none"> • Crew preparation; • Aircraft and equipment preparation; • Use of the hoist, normal and emergency procedures; • Use of ICS; • Check and use of PPE and other equipment; • Basic principles of voice communication/marshalling; • Techniques for guiding pilots over HHO sites • Clear⁴ area hoist operations; • Non HEC lifts; • HEC lifts; • CRM and crew coordination concept specific to HHO. | <ul style="list-style-type: none"> • Pre-flight briefing; • Preparing the helicopter and specialist equipment for HHO; • Weight and center of gravity management; • Operation of inter-communication and radio equipment; • Performed hoist checks and pre-winch checks; • Guidance over HHO sites; • Standard winching circuit; • Aircraft positioning using standard phraseology between Hoist Operator and Pilot; • Horizontal and vertical rotor and tail clearance; • Operation of hoist equipment; • Non HEC single lift (use of load) on clear area; | An estimated minimum of 50 hoist ⁶ cycles should be performed by the ab-initio Hoist Operator (25 NON-HEC+25 HEC). | Regulation (EU) 965/2012 on air operations AMC1 SPA.HHO.130(f)(1)(c) + ESPN-R PROPOSAL |

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| | <p>⁴according to the ab-initio Hoist Operator progression, it might be possible to perform confined area winching.</p> | <ul style="list-style-type: none"> • Hoist malfunctions and emergency procedures (i.e.: mechanical, electrical, loss of communication, etc.); • Aircraft malfunctions and emergency procedures, including simulation of an engine failure; • HEC Single and double lifts; • HEC Single and double lifts; • Techniques for handling HHO passenger; • Standard hand signals; • Control of the swing and spinning avoidance; • Area reconnaissance, detection of specific dangers relating to the operating environments (<i>Risk assessment method</i>); • Elements of CRM like decision making, situation awareness (not limited to); • De-briefing. | <p>The training concept is based on a competence based and the recommended number of hoist cycles may be reduced or increased, based on the demonstrated performance skill of the student.</p> | |
| Theoretical Checks | <p>Specialized Enhanced Training for Technical Crew Member is validated after completion of a written test and a flight check.</p> | <ul style="list-style-type: none"> • Multiple Choice Questions: 50 questions covering the different topics. <i>75% of correct answers to pass the exam.</i> | <p>01 hour</p> | <p>Regulation (EU) 965/2012 on air operations AMC1 SPA.HHO.130 (f)(1) + AMC1 ORO.TC.110 (4) + ESPN-R PROPOSAL</p> |
| Flight checks | <p>In-flight checking should be performed by day only and on a clear area covering all aspect of the flight training phase including Hoist malfunctions and emergency procedures;</p> <p>The checks have to be performed with HEC.</p> | <ul style="list-style-type: none"> • Pre-flight briefing; • Preparing the helicopter and specialist equipment for HHO; • Communication; • Use of the hoist system; • Area reconnaissance, detection of specific dangers relating to the operating environments; • Guidance over HHO sites; | <p>1.5 hours</p> | <p>Regulation (EU) 965/2012 on air operations AMC1 SPA.HHO.130 (f)(1) + AMC1 ORO.TC.110 (3) + ESPN-R PROPOSAL</p> |

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| | <p>The Hoist Operator trainer can assess the Hoist Operator under supervision with oral checks.</p> | <ul style="list-style-type: none"> • Single and/or double HEC lifts • Hoist malfunctions and emergency procedures; • Situation awareness <p>De-briefing</p> | | |
|--|---|--|--|--|

³As for the flight crew members (SPA-HHO.130) the ESPN-R working group suggests to define a number of minimum hoist ⁶cycles to be performed during the specialized enhanced training for Hoist Operator.

 **Trainers:**

The basic Hoist Operator TCM training shall be provided by an experienced and qualified HHO Technical Crew Member.

The ESPN-R Hoist Safety Promotion working group suggests to clarify this point adding in the actual set of standards a dedicated train-the-trainer program for Technical Crew Member → see Annex 01/ flow chart /3.2 Trainers.

 **Optional training:**

Following the “Special Enhanced Training” and prior to be involved in the “Operator on-type Training” it is possible for the HHO TCM to be trained in *more competence based scenarios operations* as (but not limited to) *HHO in rescue duties*.

3.6 Module 3 – Additional Training “Front Seat Training”

For single pilot HEMS operation only and according to the aircraft configuration.

If required, this module must be followed as per HEMS Technical Crew Member training (*AMC1 SPA.HEMS 130(e)*).

3.7 Module 4 –Operator on-type Training for Hoist Operator Technical Crew Member

Training and checking must be defined by the operator in the Operations Manual (OM) and approved by the competent authority. It might include an “on type”, onshore, offshore, NVG, etc. -training according to the need / type of operation. The chart below is indicative as “the operator should determine the content of the Conversion or Differences⁵ training ... (AMC2 ORO.TC.120 & 125)”.

⁵Differences training- ORO.TC.125: Each Technical Crew Member shall complete differences training when changing equipment or procedures on types or variants currently operated.

 **Module 04 - Operator on-type Training - Hoist Operator Technical Crew Member:**

| Module 4 | Topics to be covered (not limited to) | Contents (not limited to) | <i>Guideline for recommended duration of training</i> | <i>references</i> |
|-------------|--|--|---|--|
| Theoretical | <ul style="list-style-type: none"> • Technical aspect of the aircraft; • Technical aspect of the hoist; • Company specific procedures and phraseology; • Dangerous goods; • Passenger briefing; • CRM and crew Coordination. • Specific knowledge about the local mission area (e.g. web-based obstacle maps) • Specific rescue equipment used by the operator | <ul style="list-style-type: none"> • "On type" aircraft limitations; • "On type" hoist system and Limitations; | Specified by the operator | Contents as per AMC1 ORO.TC.120 & 125. + ESPN-R Proposal |
| Practical | <ul style="list-style-type: none"> • Hoist system; • Aircraft and equipment preparation; • Location of on-board fire extinguisher; • Location of normal and emergency exits; • Location of safety equipment; • Preparing and handling of the specifically used rescue equipment | <ul style="list-style-type: none"> • "On type" aircraft limitations; • "On type" hoist system and Limitations; | Specified by the operator | Contents as per AMC1 ORO.TC.120 & 125. + ESPN-R Proposal |
| Flight | <ul style="list-style-type: none"> • Company specific procedures and phraseology; • Task-specific training (<i>as Hoist Operator</i>) • CRM and crew Coordination | | Specified by the operator | Contents as per AMC1 ORO.TC.120 & 125. + ESPN-R Proposal |

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| <p>Proficiency Flight checks</p> | <p>As per flight crew AMC1 SPA.HHO.130 (f)(1)</p> | <ul style="list-style-type: none"> • Local area meteorology; • HHO flight planning; • Normal and simulated HHO procedure incl. correct use of the HHO checklists • HHO departures; • Transition to and from the hover at the HHO site; • Normal and simulated emergency HHO procedures; • CRM and crew Coordination. | <p>Specified by the operator</p> | <p>Regulation (EU) 965/2012 on air operations AMC1 SPA.HHO.130 (f)(1) + AMC1 ORO.TC.110 (3) + ESPN-R PROPOSAL</p> |
|--------------------------------------|--|---|----------------------------------|---|

4. CONDITIONS FOR ASSIGNMENT TO DUTIES / REFERENCE ORO.TC.105

4.1 Hoist Operator Technical Crew Member

(a) Technical crew members in commercial air transport HHO (HEMS, NVIS) operations shall only be assigned duties if they:

(1) have completed all applicable training recommended by this document to perform the assigned duties or be already experienced as a hoist operator (with grandfather rights).

Grandfather rights

For operators with proven/existing experience: the grandfathering of standards needs to be carefully considered.

For newly to be trained hoist operators the changed guidelines enable more opportunities to maintain and obtain justified and documented permission of the respective operation.

A “grandfathering right” is foreseen to be granted to experienced hoist operators with the target to being not detrimental to the overall safety target. It is to be evaluated on a case by case basis and credits should be granted on basis of proportionality in considering several criteria.

Recommended Criteria:

- ✓ 2 years of operational activity;
- ✓ 200 HEC hoist⁶ cycles as the minimum;
- ✓ fill the proven/existing experience, aeronautic, and operational background.

(2) have been checked as proficient to perform all assigned duties in accordance with the procedures specified in the operations manual.

(3) are physically and mentally fit to safely discharge assigned duties and responsibilities; (Ref: GM1 ORO.TC.105 Conditions for assignment to duties).

4.2 Self-employed, freelance, part-time Hoist Operator Technical Crew Member /ORO.TC.105

(b) Before assigning to duties Technical Crew Members who are self-employed and/or working on a freelance or part-time basis, the operator shall verify that all applicable requirements of this Subpart are complied with, taking into account all services rendered by the technical crew member to other operator(s) to determine in particular:

- (1)** the total number of aircraft types and variants operated;
- (2)** the applicable flight and duty time limitations and rest requirements

5. RECENCY – SPA-HHO.130 “Crew Requirements”

Hoist Operator Technical Crew Member conducting Helicopter Hoist Operations shall have completed in the last 90 days:

- (1) when operating by day: any combination of **three day or night** ⁶**cycles**, each of which shall include a transition to and from the hover.
- (2) When operating by night: **three night hoist** ⁶**cycles**, each of which shall include a transition to and from the hover.

⁶**Hoist cycle:** each of which shall include a transition from and to the hover, ideally: one hoisting down and up of the hook with either delivering or picking up a person or an object to or from a surface (land, sea, deck, raft etc...)

6. RECURRENT TRAINING – ORO-TC.135 “Recurrent Training”

- (a) Within every 12-month period, each Technical Crew Member shall undergo recurrent training relevant to the type or class of aircraft and equipment that the Technical Crew Member operates. Elements of CRM shall be integrated into all appropriate phases of the recurrent training.
- (b) Recurrent training shall include theoretical and practical instruction and practice.

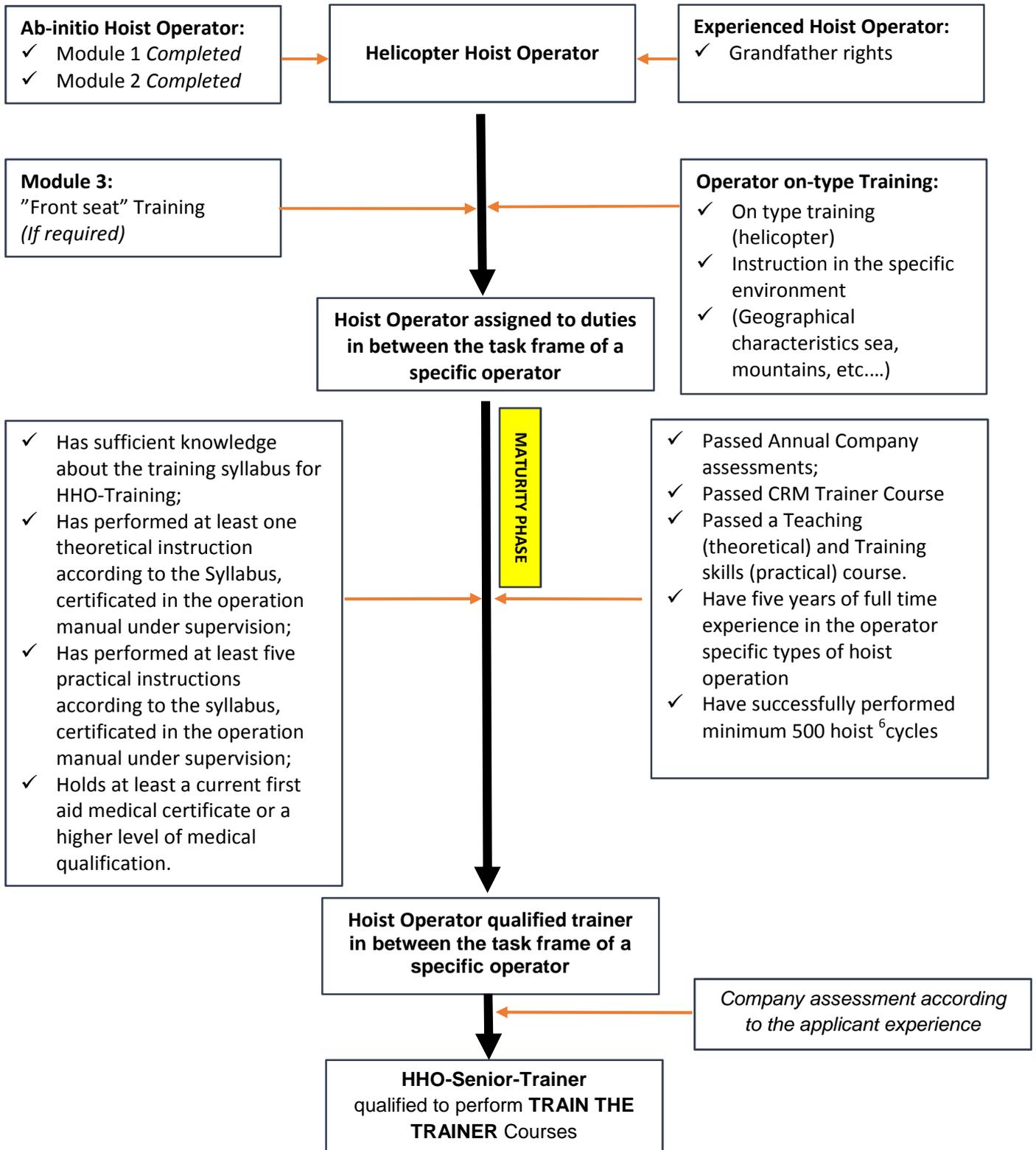
The ESPN-R recommend that in addition to the ORO.TC.135 and AMC1. ORO.TC.135, the Hoist Operations Technical Crew Member should perform flight activities including hoist operations or perform, when available, an activity on a simulation device in line with a competency-based approach.

7. MISCELLENEOUS

- (a) ESPN-R hoist safety promotion working group proposes, flight crew members (Pilots) involved in hoist operations and HHO passengers (e.g. scheduled/commercial passenger transport) have to perform a standardized initial training that should be conducted in accordance with uniform authority regulations or based on another acceptable industrial standard (which is not covered in this document) prior starting HHO duties.
- (b) It is **not recommended** to train both HHO Pilot ab-initio and HHO TCM ab-initio together at the same time.
- (c) This document is not related to HEMS, NVIS, External sling load operations and task specialists.

ANNEX 01

1. From Hoist Operator to Senior Hoist Operator Trainer:



2. Module 01 trainings syllabus HHO Instructor – Learning & Teaching

The basic requirement for a HHO trainer is the successful completion of an assessment. The focus here is on soft skills such as:

- Character suitability;
- Safety-conscious action;
- CRM principles in relation to the Helicopter Hoist Operation;
- Conscious action in stress situations.

| Training section Learning and teaching | | | |
|---|---|---|---|
| Module 01 | Topics to be covered (not limited to) | Contents (not limited to) | Recommended duration of training (hh:mm) |
| Index 1 Theoretical | <ul style="list-style-type: none"> • Basics of learning | <ul style="list-style-type: none"> • Basics of adult education • motivation • Perception and understanding • Behavior and transmission • Learning obstacles / Learning incentives • learning progress • learning methods | 3:00 |
| Index 2 Theoretical | <ul style="list-style-type: none"> • The teaching activities | <ul style="list-style-type: none"> • The role of the teacher / instructor • Basics of successful teaching • lesson planning • learning objectives • Teaching aids and media • forms of teaching • communication | 3:00 |

| | | | |
|---|---|---|---------------------|
| <p>Index 3 Theoretical</p> | <ul style="list-style-type: none"> • Group dynamic processes | <ul style="list-style-type: none"> • Advantages and disadvantages of group dynamics • What does group dynamics mean? • The group phases • Watch group • Communication patterns in the group • Hierarchies or roles in a group • Development of standards in groups • Analyzing groups • Identify group potential • Controlling and influencing groups • Promoting group and team development • Countering conflicts and resistance within the group • Get group feedback | <p>3:00</p> |
| <p>Index 4 Practical</p> | <ul style="list-style-type: none"> • Practical exercises | <ul style="list-style-type: none"> • teaching samples | <p>3:00</p> |
| <p><i>For Indication, The training section "Learning and Teaching" is based on the standard of the training certificate ADA "Training of Trainers" issued by the German Chamber of Industry and Commerce and the Chamber of Skilled Crafts.</i></p> | | | |
| | | | <p>12:00</p> |

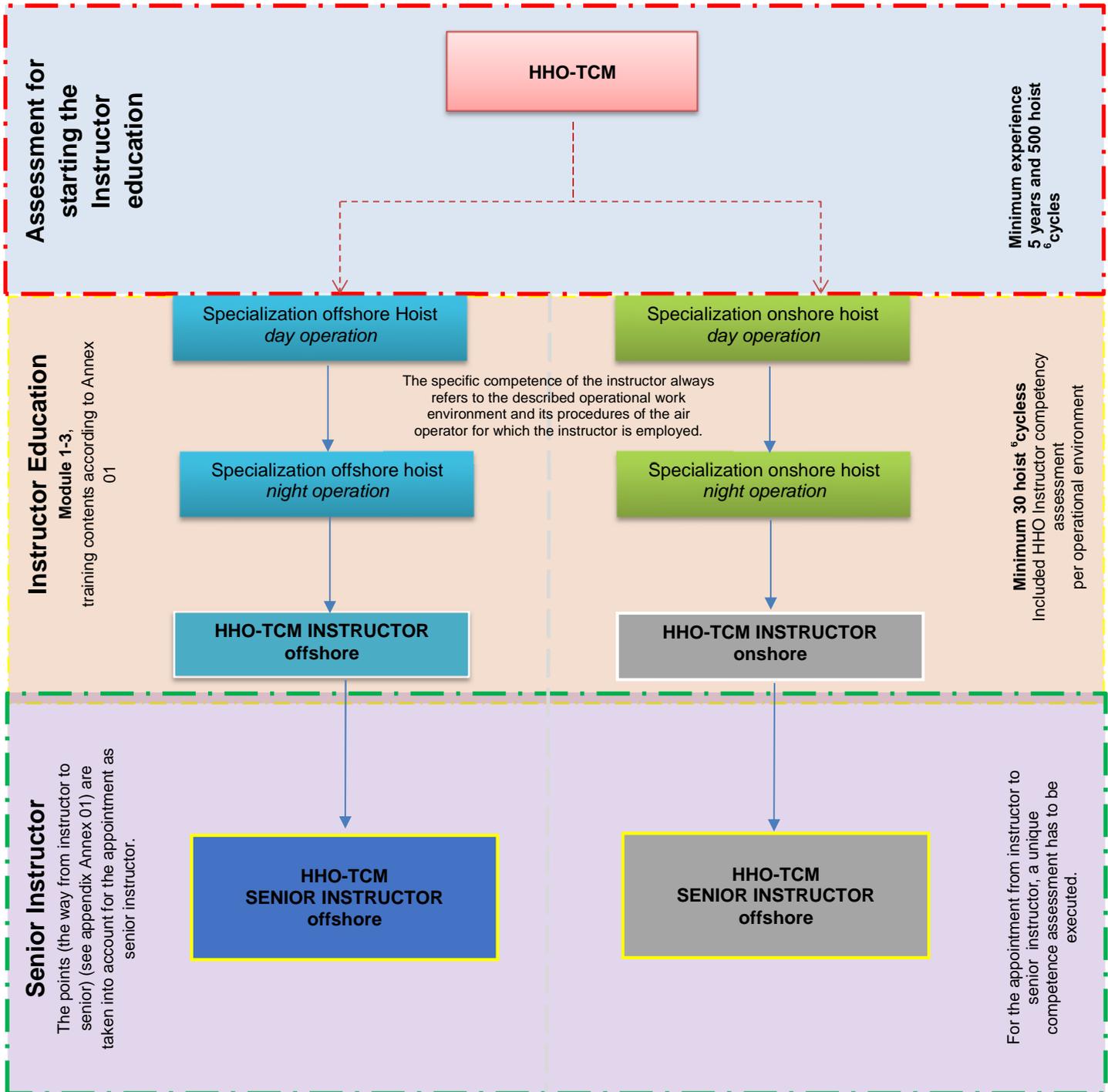
3. Module 02 Trainings syllabus HHO Instructor – Theoretical Activities

| Training section theory | | | |
|-------------------------------|---|--|---|
| Module 02 | Topics to be covered (not limited to) | Contents (not limited to) | Recommended duration of training (hh:mm) |
| Index 1 Theoretical | <ul style="list-style-type: none"> Standard procedures and basic knowledge | <ul style="list-style-type: none"> Repetition and standardization of the basic knowledge from the HHO basic training as well as the extended sectors of the HHO duties. | 03:00 |
| Index 2 Theoretical | <ul style="list-style-type: none"> Crew coordination concept | <ul style="list-style-type: none"> Crew cooperation during training flights | 01:30 |
| Index 3 Theoretical | <ul style="list-style-type: none"> Placing of emergency procedures | <ul style="list-style-type: none"> Recording of emergency procedures during the training of HHO crewmembers. | 01:30 |
| Index 4 Theoretical | <ul style="list-style-type: none"> Proficiency checks | <ul style="list-style-type: none"> Basics of the execution of proficiency checks in the HHO operation at HHO-TCM. | 01:30 |
| Index 5 Theoretical | <ul style="list-style-type: none"> Legal regulations at law | <ul style="list-style-type: none"> Aviation legal regulations on helicopter hoist operation and the associated instructor activity. | 01:00 |
| Index 6 Theoretical | <ul style="list-style-type: none"> Documentation and verification | <ul style="list-style-type: none"> Providing the legally compliant documentation; Filling in the flight training course files; Check flight forms and the archiving periods associated with them. | 01:00 |
| Theoretical Checks | <ul style="list-style-type: none"> Knowledge examination | <ul style="list-style-type: none"> Multiple Choice Questions covering knowledge from the indexes 1-6; <i>75% of correct answers to pass the exam.</i> | 01:00 |
| | | | 10:30 |

4. Module 3 Trainings syllabus HHO Instructor – *Flight activities*

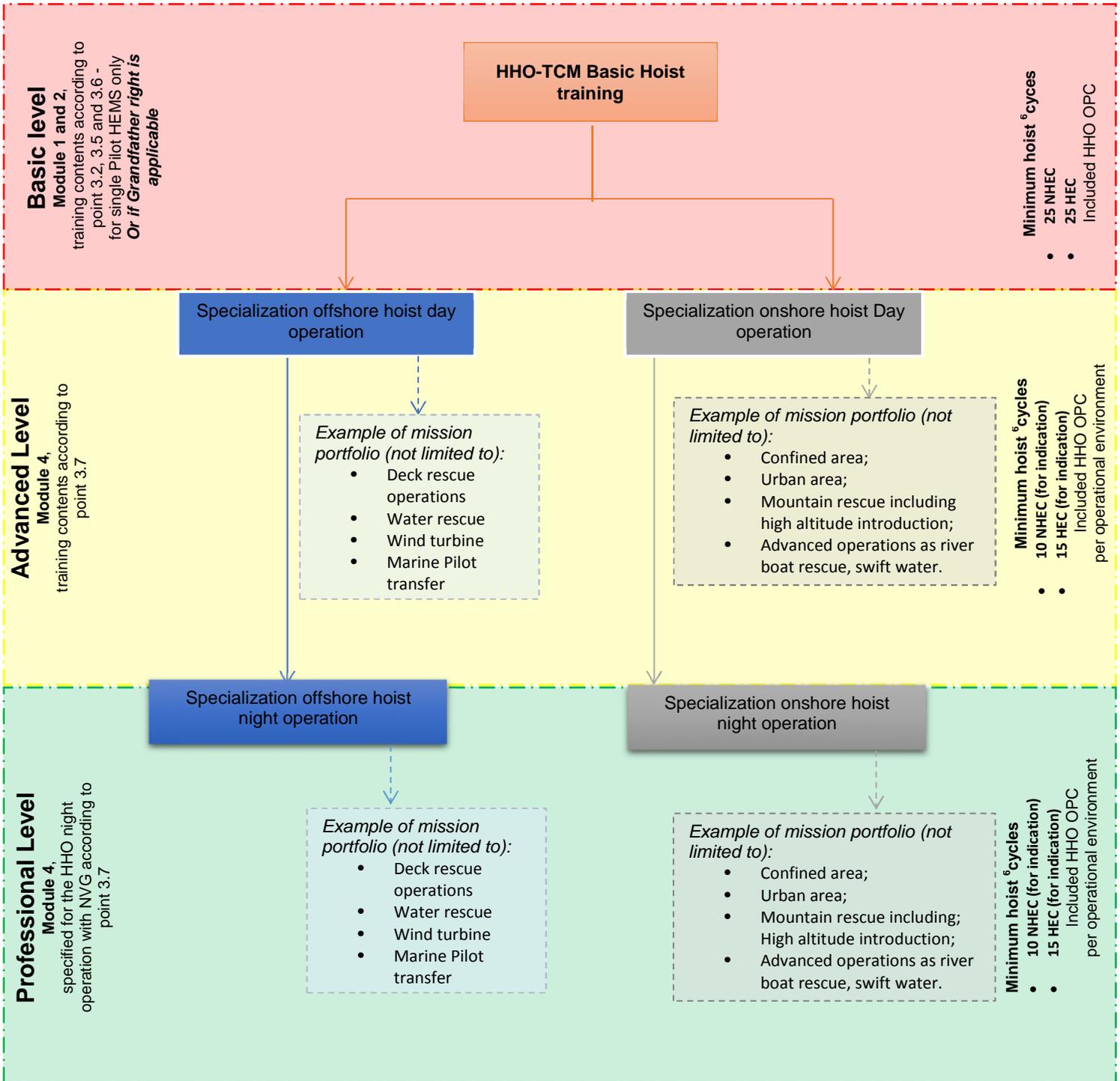
| Practical training | | | | |
|--------------------------|--|---|--|---|
| Module 3 | Topics to be covered (not limited to) | Contents (not limited to) | Recommended duration of training- performance based approach | |
| | | | Flight time | Hoist ⁶ cycles |
| Index 1 Flight | Standardisation of procedures | <ul style="list-style-type: none"> Standard procedure in Helicopter Hoist Operation; Emergency procedure in the Helicopter Hoist Operation; | 02:00 | 9 |
| Index 2 Flight | Crew cooperation | <ul style="list-style-type: none"> Training of crew cooperation during training flights in real environment in Helicopter Hoist Operation; | 00:30 | 3 |
| Index 3 Flight | Training HHO students | <ul style="list-style-type: none"> Procedures for the training of HHO crew members; At the beginning, a different instructor is used as a student, in the second step it is a real training situation for primary school students of HHO crew members; | 01:15 | 6 |
| Index 4 Flight | Emergency procedures | <ul style="list-style-type: none"> Recording of emergency procedures during the training of HHO crew members; How do I intervene sensibly? Safety-/ Situation and awareness. | 01:15 | 4 |
| Index 5 Flight | Flight training and proficiency checks | <ul style="list-style-type: none"> Simulation of proficiency checks based on the legal requirements under consideration of minimum flight time and minimum hoist ⁶cycles in real operational environment. | 01:00 | 5 |
| Checks Flight | Competency assessment | <ul style="list-style-type: none"> Examination and evaluation of the theoretical and practical training contents module 2 and module 3 in the form of a simulated acceptance of a proficiency check of a HHO crewmember. The HHO crewmember is simulated by an experienced HHO Instructor. | 00:30 | 3 |
| | | | 06:30 | 30 Hoist ⁶cycles Estimation Guideline |

5. Example for step process HHO TCM training – From HO to HO Senior Instructor



ANNEX 02

1. Example for step process HHO TCM training – from basic HO to HO



OPC: Operator Proficiency Check

ANNEX 02

2. Example for syllabus proposal for flight activities Module 02- basic Hoist Operator

| SCORING METHOD | |
|----------------|---|
| D | Demonstration; |
| 1 | Performance above average; |
| 2 | Detects errors independently and eliminates them. Training goal achieved; |
| 3 | Makes occasional mistakes, exercise must be repeated; |
| 4 | Frequently makes mistakes, must be corrected, repeat exercise. |

| | | FLIGHTS | | | | | | | | | | Final Result | |
|---|---|---------|---|---|---|---|---|---|---|---|----|--------------|--|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| AB-INITIO HOIST OPERATOR TRAINING SYLLABUS | MANOUVERS/TASKS/PROCEDURES | | | | | | | | | | | | |
| | Pre-flight briefing | | | | | | | | | | | | |
| | Preparing the helicopter and specialist equipment for HHO | | | | | | | | | | | | |
| | Weight and center of gravity management | | | | | | | | | | | | |
| | Operation of inter-communication and radio equipment | | | | | | | | | | | | |
| | Communication | | | | | | | | | | | | |
| | Performed hoist checks and pre-wincing checks | | | | | | | | | | | | |
| | Guidance over HHO sites | | | | | | | | | | | | |
| | Standard winching circuit | | | | | | | | | | | | |
| | Aircraft positioning using standard phraseology between Hoist Operator and Pilot; | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|--|--|--|--|--|--|--|--|--|--|--|--|
| AB-INITIO HOIST OPERATOR TRAINING SYLLABUS | Horizontal and vertical rotor and tail clearance; | | | | | | | | | | | | |
| | Operation of hoist equipment; | | | | | | | | | | | | |
| | Non HEC single lift (use of load) on clear area; | | | | | | | | | | | | |
| | Hoist malfunctions and emergency procedures; | | | | | | | | | | | | |
| | Aircraft malfunctions and emergency procedures, including simulation of an engine failure (fly away); | | | | | | | | | | | | |
| | HEC Single and double lifts; | | | | | | | | | | | | |
| | Techniques for handling HHO Passenger; | | | | | | | | | | | | |
| | Standard hand signals; | | | | | | | | | | | | |
| | Control of the swing and spinning avoidance; | | | | | | | | | | | | |
| | Area reconnaissance, detection of specific dangers relating to the operating environments; | | | | | | | | | | | | |
| | Elements of CRM like decision making, situation awareness (but not limited to); | | | | | | | | | | | | |
| | De-briefing; | | | | | | | | | | | | |

Scoring method: After each flight the Hoist Operator Instructor will evaluate and give a score to the student. The scoring method might be defined by the operator (and/or an ATO) and can use numbers or letters, the final score (after completing the recommended 25NHEC + 25HEC hoist⁶ cycles) must be above the limit defined by the Operator. In addition, the Operator might define a minimum level to obtain for each flight sortie, If the level is not reached the student shall perform the same sortie again.

Note: the training concept is based on a competence based and the recommended number of hoist cycles. Hoist cycles may be reduced or increased, based on the demonstrated performance skill of the student hHoist cycle shall include a transition from and to the hover, ideally hoisting down and up of the hoist hook with either delivering or picking up a person or an object to or from a surface (land, sea, deck, raft etc...)

ESPN-R Hoist Safety Promotion working group

Participants:

- ✓ **Christoph Hess, Karl Mueller** – Swiss Air Force
- ✓ **Klaus Hopf** – Bavarian Helicopter Police Squadron
- ✓ **Sebastian Schneider** – DRF Luftrettung
- ✓ **Peter Schellig** – ADAC Luftrettung
- ✓ **Walter Traversa, Michele Valenza** – Babcock Italia
- ✓ **Kim Gardberg** - CHC
- ✓ **Andrea Walser** – REGA
- ✓ **Fabrice Legay, Jan Loncke** – EASA
- ✓ **Julien Eymard, Dario De Liguoro** – Leonardo Helicopters
- ✓ **Bernd Osswald, Rupert Gleissl, Alexander Weissenboeck** – Airbus Helicopters Germany

