



FOCA Certification Leaflet (CL)

Helicopter Hoist Operations



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List of abbreviations and acronyms

The following abbreviations and acronyms are within this Certification Leaflet:

Abbreviation	Acronyms		
AEO	all-engines-operative	FTL	flight and duty time limitations
AFM	aircraft flight manual	GM	Guidance Material
AMC	acceptable means of compliance	GPS	global positioning system
AOC	air operator certificate	GPWS	ground proximity warning system
CAT	commercial air transport	H	helicopter
CL	certification leaflet	HEMS	helicopter emergency medical service
CPL	commercial pilot licence	HHO	helicopter hoist operation
CRM	crew resource management	HIGE	hover in ground effect
CS	certification specifications	HOGE	hover out of ground effect
DG	dangerous goods	HUMS	health usage monitor system
DPATO	defined point after take-off	ICAO	International Civil Aviation Organization
DPBL	defined point before landing	IDE	instrument, data equipment
EFB	electronic flight bag	IFR	instrument flight rules
EC	European Community	IGE	in ground effect
ELT	emergency locator transmitter	IMC	instrument meteorological conditions
ERP	emergency response plan	IR	Implementing Rule
EU	European Union	IR	instrument rating
FOCA	Federal Office of Civil Aviation	JAA	Joint Aviation Authorities
FATO	final approach and take-off area	JAR	Joint Aviation Requirement
FC	flight crew	kt	knots
FCL	flight crew licensing	LDA	landing distance available
FSTD	Flight simulation training device	LDP	landing decision point
FFS	full flight simulator	LVO	low visibility operation
FI	flight instructor	MCTOM	maximum certified take-off mass
FMS	flight management system	MEL	minimum equipment list
FNTP	flight and navigation procedures trainer		

Abbreviation	Acronyms	Abbreviation	Acronyms
MLR	manuals, logs and records	RVSM	reduced vertical separation minima
MMEL	master minimum equipment list	SAR	search and rescue
MNPS	minimum navigation performance specifications	SMM	safety management manual
MOPSC	Maximum operational passenger seating configuration	SMS	safety management system
NM	nautical miles	SOP	standard operating procedure
NPA	notice of proposed amendment	SPA	operations requiring specific approvals
NVD	night vision device	SPO	specialised operations
NVG	night vision goggles	STC	supplemental type certificate
NVIS	night vision imaging system	TAWS	terrain awareness warning system
OAT	outside air temperature	TC	technical crew
OEI	one-engine-inoperative	TC	type certificate
OGE	out of ground effect	TCAS	traffic collision avoidance system
OM	operations manual	TDP	take-off decision point
OPC	operators proficiency check	TI	technical instructions
ORO	organisation requirements for air operations	TODAH	take-off distance available
PBN	performance-based navigation	TODRH	take-off distance required
PIC	pilot-in-command	UMS	usage monitoring system
PIS	public interest site	V ₂	take-off safety speed
POH	pilot's operating handbook	VMC	visual meteorological conditions
PCDS	personnel carrying device system	VFR	visual flight rules
RAD	radio altimeter	VTOL	vertical take-off and landing
RCC	rescue coordination centre	VTSS	take-off safety speed
RNAV	area navigation	VMC	visual meteorological conditions
ROD	rate of descent	ZFM	zero fuel mass
RTODAH	rejected take-off distance available (helicopters)		
RTODRH	rejected take-off distance required (helicopters)		

Definitions for terms used in this Certification Leaflet

‘alternative means of compliance’ means those means that propose an alternative to an existing acceptable means of compliance or those that propose new means to establish compliance with Regulation (EC) No 216/2008 and its Implementing Rules for which no associated AMC have been adopted by the Agency;

‘crew member’ means a person assigned by an operator to perform duties on board an aircraft;

(a) in the case of aeroplanes, a full flight simulator (FFS), a flight training device (FTD), a flight and navigation procedures trainer (FNPT), or a basic instrument training device (BITD);

(b) in the case of helicopters, a full flight simulator (FFS), a flight training device (FTD) or a flight and navigation procedures trainer (FNPT);

‘ground emergency service personnel’ means any ground emergency service personnel (such as policemen, firemen, etc.) involved with helicopter emergency medical services (HEMSs) and whose tasks are to any extent pertinent to helicopter operations;

‘helicopter’ means a heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axes;

‘helicopter hoist operation (HHO) crew member’ means a technical crew member who performs assigned duties relating to the operation of a hoist;

‘HEMS flight’ means a flight by a helicopter operating under a HEMS approval, the purpose of which is to facilitate emergency medical assistance, where immediate and rapid transportation is essential, by carrying:

(a) medical personnel;

(b) medical supplies (equipment, blood, organs, drugs); or

(c) ill or injured persons and other persons directly involved;

‘HEMS operating site’ means a site selected by the commander during a HEMS flight for helicopter hoist operations, landing and take-off;

‘HHO cycle’ means one down-and-up cycle of the hoist hook.

‘HHO flight’ means a flight by a helicopter operating under an HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist;

‘HHO offshore’ means a flight by a helicopter operating under a HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist from or to a vessel or structure in a sea area or to the sea itself;

‘HHO passenger’ means a person who is to be transferred by means of a helicopter hoist;

‘HHO site’ means a specific area at which a helicopter performs a hoist transfer;

‘local helicopter operation’ means a commercial air transport operation of helicopters with a maximum certified take-off mass (MCTOM) over 3 175 kg and a maximum operational passenger seating configuration (MOPSC) of nine or less, by day, over routes navigated by reference to visual landmarks, conducted within a local and defined geographical area specified in the operations manual;

‘night’ means the period between the end of evening civil twilight and the beginning of morning civil twilight or such other period between sunset and sunrise as may be prescribed by the appropriate authority, as defined by the member state;

‘offshore operation’ means operations which routinely have a substantial proportion of the flight conducted over sea areas to or from offshore locations;

‘operating site’ means a site, other than an aerodrome, selected by the operator or pilot-in-command or commander for landing, take-off and/or external load operations;

‘pilot-in-command’ means the pilot designated as being in command and charged with the safe conduct of the flight. For the purpose of commercial air transport operations, the ‘pilot-in-command’ shall be termed the ‘commander’;

‘principal place of business’ means the head office of the organization within which the principal financial functions and operational control of the activities referred to in this Regulation are exercised;

‘technical crew member’ means a crew member in commercial air transport HEMS, HHO or NVIS operations other than a flight or cabin crew member, assigned by the operator to duties in the aircraft or on the ground for the purpose of assisting the pilot during HEMS, HHO or NVIS operations, which may require the operation of specialised on-board equipment;

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CL 0 Introduction

All Certification Leaflets (CL) are intended to assist the organisation/operator in the implementation of relevant matters into the activities and document system of the organisation/operator, as well as to ensure compliance with legal requirements. It is to be considered a tool for the organisation/operator in order to ease processes of obtaining required and defined acceptances, approvals and authorisations issued by the Federal Office of Civil Aviation (FOCA). Using the CL will facilitate establishing compliance with defined requirements and will lead through the respective certification or variation process. This is achieved by the presentation of key questions to be used by the organisation/operator to question completeness and compliance of the information contained in the respective document system by performing a self-assessment prior to submitting the documentation to the FOCA.

It is important to understand, that the FOCA will use the identical CL when evaluating regulatory compliance with a specific requirement. The CL is also used as a checklist when performing the authorities' technical assessment during the certification or variation process. The questions used by the organisation/operator during the self-assessment are identical to those used by the inspector during the evaluation process.

0.1. Purpose of this CL

The purpose of this certification leaflet is to provide:

- an overview of the general requirements of an HHO approval;
- guidance on the possibility of developing the necessary HHO content of the operations manual;
- a self-assessment tool for organisations to verify compliance with the relevant legal requirements; and
- a certification tool for the competent authority to conduct document evaluation regarding compliance with the relevant legal requirements.

0.2. Scope

The material in this CL covers all aspects of requirements for HHO approval. It will help the applicant to implement the necessary content in the company's operations manuals to comply with the requirements. The questions in this CL are derived from the relevant Implementing rules, their related applicable means of compliance (AMC) and guidance material (GM). Different (e.g. company's solution) means of compliance are subject to a separate certification process.

Other specific approvals, often used in context with HHO operations (e.g. NVIS and HEMS), are also open to "standard" commercial activities, and therefore form the content of different CLs.

The examples provided in this CL may be incomplete and solely represent one possible means of how to provide the required data. An organisation must add further information or adapt the examples to their specific needs in accordance with the necessary requirements.

Definitions for terms used are listed on page "DEF1" or are outlined and explained within the reference boxes.

0.3. Terms and conditions

In the context of this Certification Leaflet, the terms listed below shall have the following meaning:

Term	Meaning	Reference
<i>shall, must, will</i>	These terms express an obligation, a positive command.	EC English Style Guide: Ch. 7.19
<i>may</i>	This term expresses a positive permission.	EC English Style Guide: Ch. 7.21
<i>shall not, will not</i>	These terms express an obligation, a negative command.	EC English Style Guide: Ch. 7.20
<i>may not, must not</i>	These terms express a prohibition.	EC English Style Guide: Ch. 7.20
<i>need not</i>	This term expresses a negative permission.	EC English Style Guide: Ch. 7.22
<i>should</i>	This term expresses an obligation when an acceptable means of compliance should be applied.	EASA Acceptable Means of Compliance publications FOCA policies and requirements
<i>could</i>	This term expresses a possibility.	http://oxforddictionaries.com/definition/english/could
<i>ideally</i>	This term expresses a best possible means of compliance and/or best experienced industry practice.	FOCA recommendation

Note: To highlight an information or editorial note, a specific note box is used.

- The use of the male gender should be understood to include male and female persons.

0.4. Legal and Reference

This CL is based on the legal references listed below:

Legal Reference	Issue	Subject
State the legal documents	Date of Issue	Brief description of the content
Basic Regulation (EC) No 216/2008	20.02.2008	Common rules in the field of civil aviation and establishing a European Aviation Safety Agency
Commission Regulation (EU) No 965/2012	05.10.2012	Technical requirements and administrative procedures related to air operations Annex I: DEF; Annex II: Part-ARO; Annex III: Part-ORO; Annex IV: Part-CAT; Annex V: Part-SPA
Commission Regulation (EU) No 1178/2011	03.11.2011	Technical requirements and administrative procedures related to civil aviation aircrew Annex I: Part-FCL; Annex II: Conversion of existing national licences and ratings; Annex III: Acceptance of Licences of third countries; Annex IV: Part-MED
Commission Regulation (EU) No 748/2012	03.08.2012	Implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations
Commission Regulation (EU) No 2042/2003	20.11.2003	Continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organizations and personnel involved in these tasks
CS 27.865 or CS 29.865		Certification specifications for small and large rotorcraft
JAR 27 Amendment 2 (27.865) or JAR 29 Amendment 2 (29.865) or later		Certification specifications for small and large rotorcraft
AMC & GM to Regulation Air Operations Annex III / Part-ORO	25.11.2012	Regulation Air Operations Annex III / Part-ORO: "Organisation Requirements Air Operations: Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Part-ORO
AMC & GM to Regulation Air Operations Annex V / Part-SPA	19.04.2012	Regulation Air Operations Annex III / Part-SPA: "HHO Approval": Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Part-SPA

0.5. Organisation/Operator Responsibilities

Helicopters shall only be operated for the purpose of HHO operations if the operator has been approved by the competent authority.

To obtain such approval by the competent authority, the operator shall:

- operate in CAT and hold a CAT AOC in accordance with Annex III (Part-ORO);
- demonstrate to the competent authority compliance with the requirements contained in Subpart I SPA.HHO.

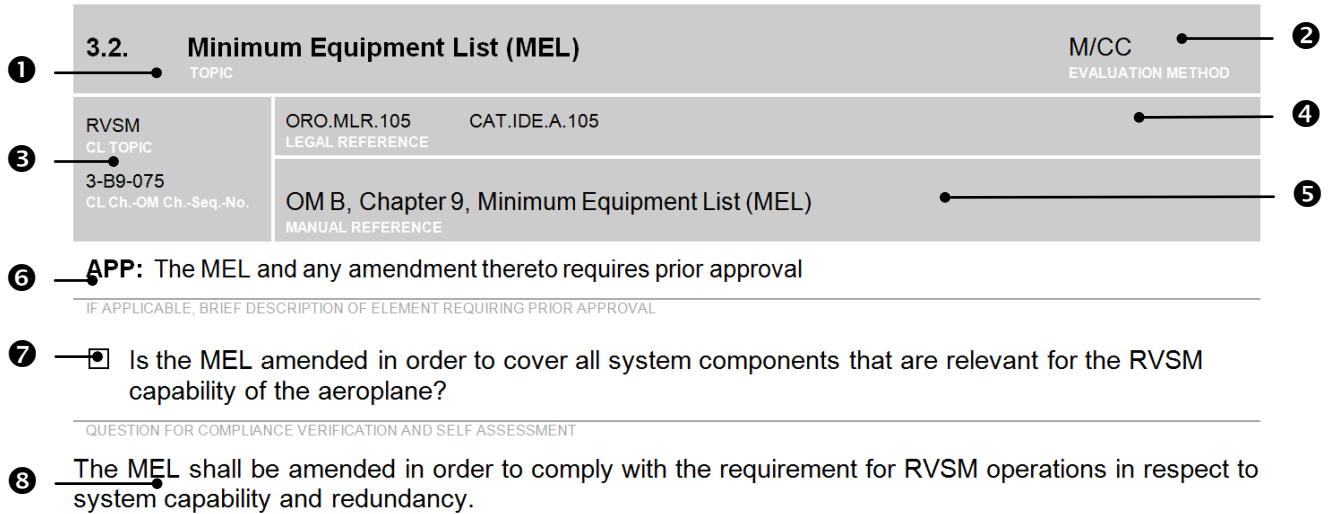
Compared with the requirements for commercial air-transport operations (CAT), HHO operations must be compliant with a set of additional and different elements.

The operator is responsible for ensuring that HHO operations remain in compliance with the requirements of the applicable IR's and AMCs/GMs.

Note: Manuals must be structured in accordance with the relevant regulation. ORO.MLR.100 / AMC1
ORO.MLR.100 / AMC 3 ORO. MLR.100

0.6. Format of the CL

The CL consists of a standardised modular reference box system. The following illustration provides details of the defined format:



1	Topic: subject description
2	FOCA evaluation method
3	FOCA / Topic Reference Number which may be used as identification in addition to interlink between this leaflet and the Document Evaluation Report (Finding Report). The Number consists of a combination of: - a subject code related to the specific topic/ theme; and - sequence number in the respective chapter of the CL. The above example 3-B9-075 indicates: RVSM = CL regarding RVSM Specific Approval, 3 = CL section; B9 = OM chapter under evaluation (here OM-B, Chapter 9.), followed by 075 = sequence number.
4	Associated legal reference and/ or reference to other relevant publications including information on formal Acceptance (ACC) or Approval (APP) where applicable.
5	Reference to the Part(s), Chapter(s) and/or Subchapters of the organisation’s document systems or manual system as required by the applicable Part.
6	If the legal provision requires a formal approval, a short description of the content of this approval is provided.
7	Questions for self-assessment and compliance verification.
8	Provides instructions, provisions, regulatory requirements, guidelines, acceptable means of compliance and examples of current best practice.

CL 1 Requirements related to HHO

1.1. Specific approvals for specific operations

A commercial air transport operator (AOC holder) has to comply with the relevant provisions of Annex V (Part SPA) to EU Regulation No 965/2012 when operating an aeroplane or helicopter for a specific operation (e.g. performance based navigation (PBN); minimum navigation performance (MNPS)).

The FOCA is the competent authority for operators applying for specific approval and whose principal place of business is Switzerland.

Part SPA (Annex V) to EU Regulation No 965/2012, divided into 10 subparts, contains operator requirements for operations requiring specific approvals:

- Subpart A contains general requirements (applicable to all specific approvals);
- Subparts B to J contain the requirements for each specific approval.

Note: Only CAT operators may apply for operations with night vision goggles (NVIS); helicopter hoist (HHO) and helicopter emergency medical service (HEMS).

1.2. Basic Regulation (EC) No 216/20081

The consolidated version of the Basic Regulation (EC) No 216/2008 of the European Parliament and of the Council states, as one of the essential requirements, that operators shall only operate an aircraft for the purpose of commercial air transport (hereinafter 'CAT') operations as specified in Annexes III and IV.

CAT operators shall comply with the relevant provisions of **Annex V** (SPA.HHO) when operating helicopters used for commercial air transport helicopter hoist operations (HHO).

1.3. Implementing Rules and Acceptable Means of Compliance

At the moment, Implementing Rules have been set in force for Air Crew and Air Operations only. Those for ATM/ANS are currently in the legislative process. Those for Airworthiness will follow in the future.

AMCs are defined as non-binding standards adopted by the Agency to illustrate means to establish compliance with the Basic Regulation and its Implementing Rules.

The AMCs issued by the Agency are not of a legislative nature; therefore they cannot impose obligations on regulated persons, who decide to show compliance with the applicable requirements by other means. However, as the intention of the legislature in providing such material is to ensure legal certainty and contribute to uniform implementation, it must define competent authorities so that regulated persons complying with an Agency AMC can be recognised as complying with the law. This is why the adoption of such material by the EASA is subject to an open rulemaking process as prescribed by Article 52 of the Basic Regulation.

Note: The questions attached to the boxes within this CL are based on Implementing Rules, AMCs and GMs. According to Swiss law, AMCs are as binding as IRs.

1.4. Elements of the HHO requiring approval

The following elements of HHO operations require prior approval by the FOCA:

- Airworthiness approval for hoist installations and equipment including any radio equipment;
- training and checking programmes;

CL 2 Documentation and information – content of the operations manual (OM)

The operator shall ensure that, as part of its risk analysis and management process, risks associated with the HHO environment are minimised by specifying in the operations manual: selection, composition and training of crews; levels of equipment and dispatch criteria; and operating procedures and minima, such that normal and likely abnormal operations are described and adequately mitigated.

Relevant extracts from the operations manual shall be made available to the organisation for which the HHO is being provided.

Additionally to the general content as required by AMC3 ORO.MLR.100 the operations manual (OM) or the special operating procedures manual (SOP) acc. AMC1 SPA.GEN.105(a) shall include:

Content		Subchapter	CL	OM	Reference
1	Definitions, Introduction	<ul style="list-style-type: none"> Definition of "HHO" "HHO approval" 	4.1	A0.1.4 or SOP	SPA.HHO.100
2	Risk analysis and management process (Information and documentation)	<ul style="list-style-type: none"> Risk analysis for HHO operations Hazards and risks associated with the HHO environment The operator shall ensure that, as part of its risk analysis and management process, are minimised by specifying in the operations manual: <ul style="list-style-type: none"> selection, composition and training of crews; levels of equipment and dispatch criteria; operating procedures and minima; normal and likely abnormal operations are described and adequately mitigated risks associated with the HEMS environment, regarding operational requirements. 	4.8	A0.X A1.X A2.X A4.X A5.X A6.X A7.X D2.X OMM 3.X OMM 4.X or SOP	SPA.HHO.100 SPA.HHO.140 AMC1 SPA.HHO.140
3	Equipment	<ul style="list-style-type: none"> Helicopter, Hoist Portable equipment on board, and its use, Survival and emergency equipment MEL Personal protection, Optional equipment, e.g.: <ul style="list-style-type: none"> Night vision goggles, 	4.2	A8.X B.1.1.1 B8.X B9.X or SOP	SPA.HHO.110 AMC1 SPA.HHO.110(a) (EC) No 748/2012
4	Communication	<ul style="list-style-type: none"> Radio equipment, Communication with: <ul style="list-style-type: none"> operating center;ground service personnel. 	4.3	A12.3 B3.X C1.X	SPA.HHO.115
5	Performance requirements for HHO operations	<ul style="list-style-type: none"> Definition of performance requirement Performance criteria Minimum size of HHO operating site Reduced visibility procedures Commander's risk assessment Qualification – authorisation list (operator specifications) 	4.4 4.8	B1.X B4.1 C1.12 or SOP	SPA.HHO.125
		<ul style="list-style-type: none"> Flight planning; Preflight; Mass and balance; Loading; 	4.8	A8.X B2.X B3.X B4.X	SPA.HHO.140 AMC1 SPA.HHO.140

6	Operating Procedures Normal, abnormal, emergency procedures	<ul style="list-style-type: none"> • Performance calculation; • Normal operation; • guidance on/for: <ul style="list-style-type: none"> ○ take-off and landing procedures at previously unsurveyed HHO operating sites; ○ the selection of the HHO operating site (surveyed and unsurveyed); • the safety altitude for the area overflown; • Abnormal operation <ul style="list-style-type: none"> ○ Discrepancies to standards procedures • Emergency procedures 		B5.X B6.X B7.X B11.X or SOP	
7	Crew requirements (crew and technical crew members)	<ul style="list-style-type: none"> • selection criteria of crew members; • conditions for assignment to duties; • minimum experience for the commander/PIC; • initial and operational training; • recency; • minimum crew day/night, VFR/IFR; • conditions for reduction to one pilot; • crew composition, • crew training and checking syllabus/ programme: <ul style="list-style-type: none"> ○ initial training; ○ operational training; ○ conversion training; ○ difference training; ○ familiarization training; ○ recurrent training; ○ refresher training • crew coordination concept; • tasks of the HHO technical crew member; 	4.5 4.6	A1.X A2.1 A4.X A5.X A6.X A8.X D2.X or SOP	ORO.TC.100 ORO.TC.105 GM1 ORO.TC.105 ORO.TC.110 AMC1 ORO.TC.110 ORO.TC.115 ORO.TC.120 ORO.TC.125 AMC1 ORO.TC.120 & 125 AMC2 ORO.TC.120 & 125 ORO.TC.130 ORO.TC.135 AMC1 ORO.TC.135 ORO.TC.140 AMC1 ORO.TC.140 SPA.HHO.130 AMC1 SPA.HHO.130(e) AMC1 SPA.HHO.130(f)(1)
8	HHO passenger briefing	<ul style="list-style-type: none"> • Ground service personnel <ul style="list-style-type: none"> ○ two-way radio communication procedures with helicopters; ○ the selection of suitable HHO operating sites for HHO flights; ○ the physical danger areas of helicopters; ○ crowd control in respect of helicopter operations; and ○ the evacuation of helicopter occupants following an on-site helicopter accident ○ dangers of static electricity discharge 	4.7	A5.X A8.3.16 D2.X or SOP	SPA.HHO.135

CL 3 Specific approvals

3.1. General requirements TOPIC	M/CC EVALUATION METHOD				
HHO CL TOPIC 3-OM A0-000 CL Ch.-OM Ch.-Seq.-No.	SPA.GEN.100 LEGAL REFERENCE	SPA.GEN.105	SPA.GEN.110	SPA.GEN.115	SPA.GEN.120
	OM A, chapter 0.X "introduction" OM A, chapter 0.2 "system of amendment and revisions" MANUAL REFERENCE				

IF APPLICABLE, BRIEF DESCRIPTION OF ELEMENT REQUIRING PRIOR APPROVAL

General:

- Does commercial air transport (CAT) operator have its principle place of business in Switzerland?
- Has the operator applied for a specific approval provided the required documentation and information?
 - the name, address, mailing address of the applicant and
 - a description of the intended operation?
- Has the operator provided the following evidence?:
 - compliance with the requirements of the applicable Subpart
 - the relevant elements defined in the data established in accordance with Regulation (EC) No. 748/2012 have been taken into account.
- Does the operator retain records related to the required documentation for the approval at least for the duration of the SPA-operation ?
- Is the scope of activity that the operator (AOC holder) is approved to conduct documented and specified in the operations specifications to the AOC?
- Does the operator require himself to provide the FOCA with the relevant documentation when conditions of a specific approval are affected by changes?
- Does the operator specify that the SPA only remains valid, if the operator remains in compliance with the requirements associated with the SPA and the relevant elements in accordance with Regulation (EC) No. 748/2012?

QUESTION FOR COMPLIANCE VERIFICATION AND SELF ASSESSMENT

DOCUMENTATION (AMC1 SPA.GEN.105(a))

- (a) Operating procedures should be documented in the operations manual.
- (b) If an operations manual is not required, operating procedures may be described in a procedures manual (SOP)

CL 4 HHO operations

4.1. HHO operations		M/CC
TOPIC		EVALUATION METHOD
HHO CL TOPIC	SPA.HHO.100 LEGAL REFERENCE	
3-OMA-005 CL Ch.-OM Ch.-Seq.-No.	OM A, chapter 0.1.4 "explanations and definitions" MANUAL REFERENCE	

APP: Helicopter operation for the purpose of HHO has to be approved by the competent authority.

IF APPLICABLE, BRIEF DESCRIPTION OF ELEMENT REQUIRING PRIOR APPROVAL

General:

- Is the operation in CAT and does the operator hold a CAT AOC in accordance with Annex III (Part-ORO)?
- Has the operator demonstrated to the authority that it is in compliance with the requirements in Subpart I?
- Is the term "HHO" defined in the OM?

QUESTION FOR COMPLIANCE VERIFICATION AND SELF ASSESSMENT

Definition

'HHO flight' means a flight by a helicopter operating under an HHO approval, the purpose of which is to facilitate the transfer of persons and/or cargo by means of a helicopter hoist.

HHO approval

HHO operations are conducted in accordance with the requirements contained in Annex IV (Part-CAT) and Annex III (Part-ORO), except for the variations contained in SPA.HHO, for which a specific approval is required.

4.2. Equipment requirements for HHO operations TOPIC	M/CC/IN EVALUATION METHOD
HHO CL TOPIC 4-OMA/B-010 CL Ch.-OM Ch.-Seq.-No.	SPA.HHO.110 SPA.HHO.115 (EC) No 748/2012 <hr/> LEGAL REFERENCE OM A, chapter 8.X "installation and use" OM B, chapter 1.1.1 "certification" OM B, chapter 8.X "configuration deviation list" OM B, chapter 9.X "minimum equipment list" <hr/> MANUAL REFERENCE

APP: Installation of all helicopter hoist equipment, including any radio equipment and any subsequent modifications shall have an airworthiness approval appropriate to the intentional function.

IF APPLICABLE, BRIEF DESCRIPTION OF ELEMENT REQUIRING PRIOR APPROVAL

General:

- Does all the helicopter hoist equipment including any radio equipment and any subsequence modifications have a airworthiness approval appropriate to the intended function?
- Is the ancillary equipment designed and tested to the appropriate standard required by the competent authority?
- Are the maintenance instructions for HHO equipment and systems established in liason with the manufacturer and included in the operators helicopter maintenance programme in accordance Regulation (EC) No 2042/2003:

Maintenance instructions for HHO systems have been established by the company, in liaison with the manufacturer, and included in the company's helicopter maintenance programme?

QUESTION FOR COMPLIANCE VERIFICATION AND SELF ASSESSMENT

HHO Equipment

The installation of all helicopter hoist equipment including any subsequent modifications and where appropriate, its operation, shall have an airworthiness approval appropriate to the intended function. Ancillary equipment must be designed and tested to the appropriate standard and be acceptable to the Authority.

4.3. HHO Communication		M/CC/IN
TOPIC		EVALUATION METHOD
HHO CL TOPIC 4-OMA/B/C-015 CL Ch.-OM Ch.-Seq.-No.	SPA.HHO.115 LEGAL REFERENCE	
	OM A, chapter 12.3 "communication procedures" OM B, chapter 3.X "abnormal and/or emergency procedures" OM C, chapter 1.X "communication" MANUAL REFERENCE	

IF APPLICABLE, BRIEF DESCRIPTION OF ELEMENT REQUIRING PRIOR APPROVAL

General:

- Is it possible to establish two-way communication with the organisation for which the HHO is being provided and, where possible, a means of communicating with ground personnel at the HHO site during day and night offshore operations and night onshore operations, except for HHO helicopter emergency medical services (HHO) operating site?

QUESTION FOR COMPLIANCE VERIFICATION AND SELF ASSESSMENT

Communication Equipment

Radio equipment, in addition to that required by National Regulations, will require airworthiness approval. Two-way communication with the organisation for which the HHO is being provided and where possible, communication with ground personnel is required for:

- o night onshore operations.

4.4. Performance requirements for HHO operations		M/CC
TOPIC		EVALUATION METHOD
HHO CL TOPIC 4-OMB/C-020 CL Ch.-OM Ch.-Seq.-No.	SPA.HHO.125 LEGAL REFERENCE	
	OM B, chapter 1.X "limitations" OM B, chapter 4.1 "performance" OM C, chapter 1.12 "special operating site limitations" MANUAL REFERENCE	

IF APPLICABLE, BRIEF DESCRIPTION OF ELEMENT REQUIRING PRIOR APPROVAL

General:

- Is it possible to sustain appropriate power with a critical engine failure with the remaining engine without hazard to the suspended person(s)/cargo, third parties or property except for HHO at a HEMS operating site?

QUESTION FOR COMPLIANCE VERIFICATION AND SELF ASSESSMENT

HEMS / HHO operating site - performance requirements

During HHO, the helicopter must be capable of sustaining a critical power unit failure with the remaining engine(s) at the appropriate power setting, without hazard to the suspended person(s)/cargo, third parties, or property, except for HEMS HHO at a HEMS operating site where the requirement need not be applied.

- Performance Class 1: the site, and its surroundings, will allow the approach, go-around, touchdown, manoeuvre, and take-off to be performed in such a way that it is possible to clear or avoid all obstacles in OEI, without risks to persons or property on the surface or the helicopter and its occupants.
- Performance Class 2: operations to/from a HEMS operating site located in a hostile environment is Performance Class 2 without an assured safe forced landing is allowed. as necessary for the mission task. The exposure time should be kept as short as possible to complete the mission.

4.5. Crew requirements – selection, experience, operational training, recency TOPIC	M/CC EVALUATION METHOD		
HHO CL TOPIC 4-OMA/D-025 CL Ch.-OM Ch.-Seq.-No.	SPA.HHO.130 LEGAL REFERENCE	ORO.TC.105	ORO.TC.110
	OM A, chapter 1.X "duties and responsibilities of crew member" OM A, chapter 2.1 "operational control and supervision" OM A, chapter 4.X "crew composition" OM A, chapter 5.X "qualification requirements" OM D, chapter 2.X "training syllabi" MANUAL REFERENCE		

APP: Crew training and checking syllabi

IF APPLICABLE, BRIEF DESCRIPTION OF ELEMENT REQUIRING PRIOR APPROVAL

General:

- Has the operator established criteria for the selection of flight crew members for the HHO task, taking previous experience (e.g. geographical characteristics: sea, mountain, big cities with heavy traffic, etc.) into account?
- Has the operator defined the minimum experience level for onshore/offshore and day/night operations for the commander/pilot in command conducting HHO flights?
- Has the operator provided the training in accordance with the HHO procedures contained in the operations manual and relevant experience in the role and environment under which HHO is conducted?
- Does the operator require that all all pilots and HHO crew members have conducted HHO in the last 90 days:
 - o For day operations any combination of three day or night hoist cycles each of which shall include a transition to and from the hover
 - o For night operations three night hoist cycles each of which shall include a transition to and from the hover
- Does the operator require the successful completion of the operational training?

QUESTION FOR COMPLIANCE VERIFICATION AND SELF ASSESSMENT

Examples**Selection criteria of flight crew member**

The company shall establish criteria used for the selection of flight crew members for the HHO task. This criteria shall take previous experience into account.

New Flight Crew members undergo an assessment process. Based on flight hours, experience and qualification, candidates are assessed for suitability. After an interview led by the flight operations manager and/or crew training manager, the candidate performs a computer based test. Evaluation criteria during the interview are CRM skills, suitable attitude and maturity of the candidate.

Formal criteria:

Age;

CPL(H) or ATPL(H) with MOU;

Flight hours on turbine helicopters as PIC;

External cargo sling level (ECS1);

Language (D, F or I).

Experience

The minimum experience level for commanders conducting HHO flights shall not be less than:

Onshore:

500 hours pilot-in-command of helicopters or 500 hours as co-pilot in HHO operations of which 100 hours is as pilot-in-command under supervision;

200 hours operating experience in helicopters gained in an operational environment similar to the intended operation

50 hoist cycles, of which 20 cycles shall be at night if night operations are being conducted.

Conditions for assignment HHO technical crew member to duties

Technical crew members of (company name) are only assigned to HHO if they:

- are at least 18 years of age;*
- provide a medical class 2 certificate (initial only);*
- have completed all applicable training required by OM XY to perform the assigned duties;*
- have been checked as proficient to perform all assigned duties in accordance with the procedures specified in OM XY.*

Operational training – all crew member

Successful completion of training in accordance with the procedures contained in OM Part D chapter XY and relevant experience in the role and environment under which HHO operations are to be conducted.

Recency

All pilots and HHO crew members conducting HHO shall have completed in the last 90 days:

When operating by day:

Any combination of 3 day or night hoist cycles, each of which shall include a transition to and from the hover.

When operating by night:

3 night hoist cycles, each of which shall include a transition to and from the hover.

4.6. Crew requirements – crew composition, training and checking TOPIC	M/CC/IN EVALUATION METHOD
HHO CL TOPIC 4-OMA/B/D-030 CL Ch.-OM Ch.-Seq.-No.	SPA.HHO.130 LEGAL REFERENCE OM A, chapter 4.X "crew composition" OM A, chapter 5.X "qualification requirements" OM A, chapter 6.X "crew health precautions" OM B, chapter 8.X "task of crew member" OM D, chapter 2.X "training and checking syllabi" MANUAL REFERENCE

APP: Detailed crew training and checking syllabi for flight crew

IF APPLICABLE, BRIEF DESCRIPTION OF ELEMENT REQUIRING PRIOR APPROVAL

General:

- Is the minimum crew for day and night operations stated in the operations manual?
- Does the operator have a detailed syllabus for training and checking included in the operations manual?
- Does the crew training programmes improve knowledge of the HHO working environment and equipment?
- Does the operations manual include a crew coordination concept and include measures to minimize the risks associated with HHO normal and emergency procedures and static discharge?
- Are the tasks of the HHO technical crew members described in the operations manual?

QUESTION FOR COMPLIANCE VERIFICATION AND SELF ASSESSMENT

Example - crew composition

The minimum crew for day or night operations is stated in the OM XY. It will be dependent on the type of helicopter, the weather conditions, the type of task, but in no case will be less than one pilot and one HHO crew member.

4.7. Crew requirements – training and checking		M/CC/IN
TOPIC		EVALUATION METHOD
HHO CL TOPIC	SPA.HHO.130 LEGAL REFERENCE	
4-OMD- Ch.-OM Ch.-Seq.-No.	OM A, chapter 5.X “qualification” OM D, chapter 2.X “training and checking syllabi” MANUAL REFERENCE	

IF APPLICABLE, BRIEF DESCRIPTION OF ELEMENT REQUIRING PRIOR APPROVAL

- Are the HHO technical crew members, beside the HHO requirements, trained and checked according ORO.TC.100 to ORO.TC.140?
- Does the operator require that the crew training programmes assessed during VMC day and night proficiency checks?
- Does the flight crew members training syllabus include the topics/items as mentioned in the example below?
- Does the flight crew members checking syllabus include the topics/items as mentioned in the example below?
- Does the HHO technical crew members training and checking syllabus include the topics/items as mentioned in the example below?

QUESTION FOR COMPLIANCE VERIFICATION AND SELF ASSESSMENT

Example – training and checking syllabi for crew members

(AMC1 SPA.HHO.130(f)(1))

Flight crew training syllabi HHO

Flight crew members of (company name) are trained in the following items:

- *fitting and use of the hoist,*
- *preparing the helicopter and hoist equipment for HHO,*
- *normal and emergency hoist procedures by day and, when required by night,*
- *crew coordination concept specific to HHO,*
- *practice of HHO procedures,*
- *the dangers of static electricity discharge,*

Flight crew checking syllabi HHO

Proficiency checks for flight crew member include procedures likely to be used at HHO sites with special emphasis on:

- *local area meteorology,*
- *HHO flight planing,*
- *HHO departures*
- *a transition to and from the hover at the HHO site,*
- *normal and simulated emergency HHO procedures,*
- *crew coordination.*

HHO technical crew training and checking syllabi

Additionally to the standard training and checking requirement for technical crew members as defined in OM D, chapter XY, HHO technical crew members of (company name) are trained and checked in the following items:

- *duties in the HHO role,*
- *fitting and use of the hoist,*
- *operation of hoist equipment,*
- *preparing the helicopter and specialist equipment for HHO,*
- *normal and emergency procedures,*
- *crew coordination concepts specific th HHO,*
- *operation of inter-communication and radio equipment,*
- *knowledge of emergency hoist equipment,*
- *techniques for handling HHO passengers,*
- *effect of the movement of personnel on the centre of gravity and mass during HHO,*
- *effect of the movement of personnel on performance during normal and emergency flight conditions,*
- *techniques for guiding pilots over HHO sites,*
- *awareness of specific dangers relating to the operating environment,*
- *the dangers of static electricity discharge.*

4.8. HHO passenger briefing		M/CC
	TOPIC	EVALUATION METHOD
HHO CL TOPIC 4-OMA/D-035 CL Ch.-OM Ch.-Seq.-No.	SPA.HHO.135 LEGAL REFERENCE	
	OM A, chapter 5.X "qualification requirements" OM A, chapter 8.3.16 "passenger briefing" OM D, chapter 2.X "training syllabi and checking programmes" MANUAL REFERENCE	

IF APPLICABLE, BRIEF DESCRIPTION OF ELEMENT REQUIRING PRIOR APPROVAL

General:

- Have the HHO passengers been briefed and made aware of the dangers of static electricity discharge and other HHO considerations prior to flight?

QUESTION FOR COMPLIANCE VERIFICATION AND SELF ASSESSMENT

Example**HHO passenger briefing**

- The commander/PIC is responsible for ensuring that all the passengers are given the appropriate briefing, or equipment demonstration, for the various stages of flight.
- Prior to any HHO flight, or series of flights, HHO passengers have to be briefed and made aware of the dangers of static electricity discharge and other HHO considerations:
 - *duties and responsibilities*
 - *familiarisation with the helicopter type(s) operated*
 - *familiarisation with the HHO equipment und rescue harness*
 - *entry and exit under normal and emergency conditions*
 - *use of relevant specialist equipment*
 - *use of helicopter inter-communication system*
 - *use of two-way radio equipment*
 - *communication during HHO mission (principles and commands)*
 - *emergency procedures during HHO mission*
 - *dangers of the static electricity discharge*
 - *location and use of on-board fire extinguisher*

4.9. Information and documentation TOPIC	M/CC EVALUATION METHOD
HHO CL TOPIC 4-OMA/D/OMM-040 CL Ch.-OM Ch.-Seq.-No.	SPA.HHO.140 LEGAL REFERENCE OM A, chapter 0.X "general" OM A, chapter 1.X "organization and responsibilities" OM A, chapter 2.X "operational control and supervision" OM A, chapter 4.X "crew composition" OM A, chapter 5.X "qualification requirements" OM A, chapter 6.X "crew health precautions" OM A, chapter 7.X "flight time limitations" OM D, chapter 2.X "training syllabi and checking programmes" OMM, chapter 3.X "duties, responsibilities and accountabilities" OMM, chapter 4.X "hazard identification and risk management" MANUAL REFERENCE

IF APPLICABLE, BRIEF DESCRIPTION OF ELEMENT REQUIRING PRIOR APPROVAL

General:

- Does the operator ensure, as part of its risk analysis and management process, risk associated with the HHO environment are minimized by specifying in the operations manual?
 - o selection, composition and training of crews;
 - o levels of equipment and dispatch criteria;
 - o operating procedures and minima;
 - o normal and likely abnormal operations are described and adequately mitigated
- Are the relevant extracts from the operations manual made available to the organisation for which the HHO is being provided?
- Does the operation manual include:
 - o performance criteria;
 - o weather limitations for HHO;
 - o the criteria for determining the minimum size of the HHO site, appropriate to the task;
 - o the procedures for determining minimum crew;
 - o the method by which crew members record hoist cycles.

QUESTION FOR COMPLIANCE VERIFICATION AND SELF ASSESSMENT

Examples - operating procedures

Prior to the mission

Before arriving at an unsurveyed HHO operating site, the site has to be analysed (based on the available information) regarding obstacles (power lines, wires, masts), type and dimension, landing terrain, condition of the surface (e.g. snow), wind, performance/weight reserve and whether a landing is possible. If such a prior mission site analysis is not possible, due e.g. to the non-availability of information or the urgency of the mission, on-site reconnaissance is of special importance ("WAHIBELU").

Airborne Reconnaissance of Landing or HHO Sites – “WAHIBELU”

In order to minimise the risk, an aerial reconnaissance flight “Reko” shall be performed prior to a landing or HHO mission at an un-surveyed operating site. The aerial reconnaissance flight over the operating/landing site should be performed at approx. 300-500 ft/AGL and at a suitable speed. It could be necessary to conduct further reconnaissance flight(s) at a lower height if it is not possible to use those heights (for example because of cloud base, turbulence, etc.). A direct approach is permissible provided that the surroundings are reasonably clear and/or familiar and that the airspeed is adjusted to a slow enough ground speed.

The mnemonic “WAHIBELU” - Important aspects to consider for a recon flight are as follows:

- Wind (**W**ind): direction and strength (GPS could be helpful, if no visual indications are available);
- Approach axes (**A**nflugachse): path in
- Obstacles (**H**indernisse): wires, trees, masts
- Illumination (**B**eleuchtung): position of the sun, glare, diffuse (white-out)
- Environment (**U**mwelt): people, animals, houses

Landing site conditions and dimension

The area chosen for touchdown/landing should appear firm, level, and free from obstructions; estimation of surface conditions (blowing dust/snow/sand).

Day: the site should have a minimum dimension of at least 2 x D (the largest dimensions of the helicopter when the rotors are turning);

Night: the site should have dimensions of at least 4 x D in length and 2 x D in width. The illumination may be either from the ground or from the helicopter.

Performance

- During HHO, the helicopter must be capable of sustaining a critical power unit failure with the remaining engine(s) at the appropriate power setting, without hazard to the suspended person(s)/cargo, third parties, or property, except for HEMS HHO at a HEMS operating site where the requirement need not be applied.
- Performance Class 1: the site, and its surroundings, will allow the approach, go-around, touchdown, manoeuvre, and take-off to be performed in such a way that it is possible to clear or avoid all obstacles in OEI, without risks to persons or property on the surface or the helicopter and its occupants.
- Performance Class 2: operations to/from a HEMS operating site located in a hostile environment is Performance Class 2 without an assured safe forced landing is allowed. as necessary for the mission task. The exposure time should be kept as short as possible to complete the mission.

Weather

No HHO operation in extreme weather conditions e.g. poor visibility (reference), turbulence, heavy static electricity discharge.

Record HHO cycles

Note: ‘HHO cycle’ means one down-and-up cycle of the hoist hook.

HHO cycles have to be recorded for technical purpose according the manufacturer. HHO cycles also have to be recorded to monitor currency and training of the flight and technical crew.