SAFETY INFORMATION NOTICE

SUBJECT: GENERAL

Flight Safety of Helicopters - Issue of EHEST leaflet

For the attention of	

AIRCRAFT CONCERNED	Version(s)	
	Civil	Military
EC120	B	
AS350	B, BA, BB, B1, B2, B3, D	L1
AS550		A2, C2, C3, U2
AS355	E, F, F1, F2, N, NP	
AS555		AF, AN, SN, UF, UN
EC130	B4, T2	
SA365 / AS365	C, C1, C2, C3, N, N1, N2, N3	F, Fs, Fi, K
AS565		MA, MB, SA, SB, UB
SA366	G1	GA
EC155	B, B1	
SA330	J	Ba, Ca, Ea, L, Jm, S1, Sm
SA341	G	B, C, D, E, F, H
SA342	J	L, L1, M, M1, Ma
ALOUETTE II	313B, 3130, 318B, 318C, 3180, 3180B, 3180C	
ALOUETTE III	316B, 316C, 3160, 319B	
LAMA	315B	
EC225	LP	
EC725		AP
AS332	C, C1, L, L1, L2	B, B1, F1, M, M1
AS532		A2, U2, AC, AL, SC, UE, UL
EC175	B	
BO105	A, C (C23, CB, CB-3, CB-4, CB-5), D (D, DS, DB, DBS, DB-4, DBS-4, DBS-5), S (CS, CBS, CBS-4, CBS-5), LS A-3	E-4, CBS-5 KLH
MBB-BK117	A-1, A-3, A-4, B-1, B-2, C-1, C-2	
EC135	T1, T2, T2+, P1, P2, P2+, 635 T1, 635 T2+, 635 P2+	

Improving global flight safety is the top priority for Airbus Helicopters. On this account, Airbus Helicopters is fully involved in the work of IHST (International Helicopter Safety Team) who aims at reducing the helicopter accident rate worldwide by 80% by the year 2016. The European branch of the IHST, called EHEST (European Helicopter Safety Team), has released the following leaflet, dealing with safety and more particularly with **advantages of Simulators (FSTDs) in Helicopter Flight Training.**

As the analyses of accidents of all types of helicopters (including the Airbus Helicopters ones) performed by the different teams of IHST (USA, Europe, Brazil, Canada, Australia, etc.) have demonstrated that the accident scenarios are very similar worldwide, the topics addressed in this leaflet are suited to helping all helicopter pilots to fly safely.

1.3 FFS - Full Flight Simulator

This is the highest level of technical complexity and training capability in the EASA and FAA regulations. In addition to the FTD definition, the FFS provides a vibration and cabin motion capability. The qualification levels range from A to D, although some lower levels are rarely used (level A in particular). The higher qualification levels bring a very comprehensive training capability to checking and testing.

- OPC: Operator Proficiency Check
- PC: for Proficiency Check
- LC: for Line Check

Main Training Value	✓ Type Rating Training ✓ Recurrent Training ✓ Navigation ✓ Safety Exercises ✓ Multi-Crew Cooperation (MCC) – Depending on Type of Helicopter simulated
Training Credits (EASA)	✓ Up to 83% type rating flight hours ✓ Up to 36% ab-initio flight hours
Checking	✓ OPC/PC ✓ MCC (if MCC qualified) (No for type Rating Skill check)
Main Technical Features **(Minimal Qualification Requirements)**	Helicopter Models: Type Specific Visual System: Yes Field of View up to: 180°(horizontal) x 60° (vertical) Vibration System: Yes Motion System: Yes

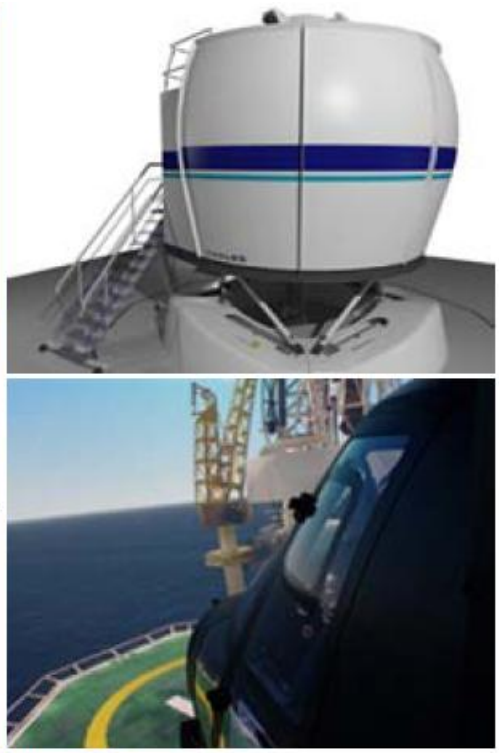

Figure 3 : FFS Main Features

2. EASA TRAINING CREDITS

2.1 Definition of Training Credits

The value of the training performed using FSTDs is recognised within the EASA regulation (and more widely, internationally) by the ability to replace or complement actual flight training hours by instruction hours on flight training devices. The amount of training hours that may be performed on the FSTD towards the minimum hours required for the issue of a licence, rating or certificate is known as 'Training Credit'.

The total Training Credit allowed is dependent upon the type of FSTD and its qualification level. A summary of these training credits is included in the Acceptable Means of Compliance and Guidance Material to Part- FCL of the AIRCREW regulation 2:

- AMC2 FCL.725(a) Requirements for the issue of class and type ratings,
- GM1 to Appendix 3; Appendix 6; FCL.735.H for dual instruction in helicopter flying training courses.

The tables of training credits included in the AMC and GM to Part- FCL are reproduced in section 2.2 as an example.

Where approved FNPTs can also be used for checking in the CPL skills test Appendix 4 C para 5 for IF items and also Appendix 7 Instrument Rating Section 6 a. Single engine failure.

It is possible that an FNPT could also be used for limited training and checking in an AOCs recurrent training and checking programme e.g TCAS event training. The term FSTD is used throughout in Part Ops thereby opening the door to a multitude of devices.

2.2 FSTD Training Credits

	Training Requirements				FSTD Training Credits				
	Dual	Solo	SPIC	Total	FS C,D	FTD 2,3	FTD 1	FNPT II, III (MCC)	FNPT I
ATPL(H)/IR Integrated									
Visual, including ME T/R training	75h	15h	40h	130h	30h	25h		20h	
Basic Instrument	10h			10h	20h	20h		20h	10h
Instrument Rating Training	40h			40h					
MCC	15h			15h	15h	15h		15h	
Total	140h	55h		195h	65h	60h		55h	10h
ATPL(H)/VFR Integrated									
Visual, including ME T/R training	75h	15h	40h	130h	30h	25h		20h	
Basic Instrument	10h			10h	5h	5h		5h	5h
MCC / VFR	10h			10h	10h	10h		10h	
Total	95h	55h		150h	45h	40h		35h	5h
CPL(H)/IR Integrated									
Visual, including ME T/R training	75h	15h	40h	130h	30h	25h		20h	
Basic Instrument	10h			10h	20h	20h		20h	5h
Instrument Rating Training	40h			40h					
Total	125h	55h		180h	50h	45h		40h	5h
CPL(H) Integrated									
Visual	75h	15h	35h	125h	30h	25h		20h	
Basic Instrument	10h			10h	5h	5h		5h	5h
Total	85h	50h		135h	35h	30h		25h	5h
CPL(H) Modular									
Visual	20h			20h	5h	5h		5h	
Basic Instrument	10h			10h	5h	5h		5h	5h
Total	30h			30h	10h	10h		10h	5h
PPL(H)									
Visual / Basic Instrument	35h	10h		45h	5h	5h	5h	5h	5h
Total	35h	10h		45h	5h	5h	5h	5h	5h
I/R(H) Modular									
Single Engine	50h			50h	35h	35h		35h	20h
Multi Engine	55h			55h	40h	40h		40h	20h
MCC(H) Modular									
MCC / VFR	15h			15h	15h	15h		15h	
MCC (VFR+IR)	20h			20h	20h	20h		20h	
MCC / IR for MCC Holder	5h			5h	5h	5h		5h	

Source EASA Part-FCL (GM1 to Appendix 3; appendix 6; FCL.735.H)
See section 4.1 for FSTD training credit for PPL3

Note: The applicable training credit must be obtained directly from the current version of the reference regulation Part-FCL.

4.4 IR Training

The benefits of using an FSTD for initial IR training have been recognised by the regulators, as evidenced by the large training credits available towards the rating issue. For initial training an ATO would typically use an FNPT. There are also training credits available for other ratings where an element of instrument flying is involved, i.e. PPL, CPL and ATPL / IR. FSTDs are also widely used for recurrent training. The renewal and revalidation of the IR may be carried out in some of the higher level devices. For all these applications an FSTD is a very efficient tool due to its capacity to perform essential training independent of real weather conditions without compromising safety.

4.5 MCC Training

The benefits of using an FSTD for MCC training have been recognised by the regulators, as the entire course must be completed in an FSTD. MCCI renewal and revalidation can be carried out in FNPT II/III MCC or FTD 2/3 or FFS.

4.6 Role Specific Training

Due to the potentially higher risks involved in certain specific roles i.e. off-shore transportation, Search and Rescue (SAR), Helicopter Emergency Medical Services (HEMS) and some Aerial Work applications, the FSTD is an excellent tool that enhances safe training without exposure to the risks involved in these operations. This applies to both initial and recurrent crew training.

In addition, many operators have expanded the use of simulators to include additional operation specific training requirements. These might not be recognised for licensing credits however, the additional training value can result in higher skilled crews and as a consequence safer operations.

It is possible that an FNPT could also be used for limited training and checking in an operator recurrent training and checking programme. The term FSTD is used throughout in EASA Part Ops thereby opening the door to a multitude of devices. Clearly an NAA operations approval will be required, but if a device is “fit for purpose” for specific training roles like TCAS event training, etc., its use should be considered.

5. ADDITIONAL NOTES ON FSTD TRAINING

5.1 Motion Sickness

FSTD sickness is slightly different from the usual airsickness. The most often reported symptoms are eyestrain, blurred vision, difficulty focusing, and visual flashbacks, with occasional headache and difficulty concentrating. Some pilots, even those who never have any problems during flight, get a little unsteady on their feet following a FSTD training session. Authorities usually recommend that pilots do not fly, or even operate a vehicle, for a period of time after an extended session in an FSTD.

Tips to minimise motion sickness:

- Avoid FSTD training if you are fatigued or have an upset stomach.
- Light refreshments only and maintain hydration.
- Ensure adequate ventilation and temperature control:
  . Avoid abrupt attitude changes.
  . Maintain balanced flight.
  . Minimise head movement.
  . Regular exposure to FSTDs helps adaptation.

5.2 Good Training practises

In order to maximise the value of an FSTD training session, full and mission orientated pre and post-flight briefings are essential and should include at least:

- FSTD / Helicopter differences, capabilities and limitations.
- Scenario / Lesson preparation.
- Training objectives.
- A thorough debrief utilising CRM facilitative techniques.
- Include Threat and Error Management techniques throughout.

6. SUMMARY

Flight Simulator Training Devices (FSTDs) are great tools to significantly improve training benefits and efficiency, while avoiding training accidents and the risks involved in helicopter operations.

FSTDs present other advantages such as extended training scope and special manoeuvres training capability, 24 hour availability, all weather conditions, and progressive learning. FSTDs are also cost-effective and environmentally-friendly.

This Leaflet also reviewed these benefits and addressed additional advantages related to technological and regulatory developments, in particular regarding the use of realistic training scenarios where operational aspects can be introduced, such as genuine surprise effects.

However, we have to remember that helicopter regulation today does not allow zero flight time training as the fixed wing regulation does, therefore a minimum number of helicopter flight hours is required for any initial type rating.

The followings subjects were addressed:

- Types of FSTDs: FNPT, FTD, and FFS
- EASA training credits
- Benefits of FSTDs
- Use of FSTDs for various types of training: PPL, CPL/ATPL, Recurrent Training, Instrument Rating (IR) Training, MCC training, and Role Specific Training
- Motion Sickness
- Good training practices

ACRONYMS, BIBLIOGRAPHY

Acronyms

AMC	Acceptable Means of Compliance
ATO	Approved Training Organisation
ATPL	Airline Transport Pilot Licence
CPL	Commercial Pilot Licence
EASA	European Aviation Safety Agency
EHEST	European Helicopter Safety Team
FAA	Federal Aviation Administration
FFS	Full Flight Simulator
FNPT	Flight and Navigation Procedures Trainer
FSTD	Flight Simulation Training Device
FTD	Flight Training Device
GM	Guidance Materials
IMC	Instrument Meteorological Conditions
IR	Instrument Rating
LC	Line Check
MCC	Multi-Crew Cooperation
MET	Multi Engine Turbine
MPH	Multi Pilot Helicopter
NAA	National Aviation Authority
OEB	Operational Evaluation Board
OPC	Operator Proficiency Check
PC	Proficiency Check
PPL	Private Pilot Licence
SEP	Single Engine Piston
SET	Single Engine Turbine
SPH	Single-Pilot Helicopter
SRM	Single (Pilot) Resource Management
TCAS	Traffic Collision and Avoidance System
VMC	Visual Meteorological Conditions

EASA Definitions:

‘Full Flight Simulator’ (FFS) means a full size replica of a specific type or make, model and series aircraft flight deck, including the assemblage of all equipment and computer programmes necessary to represent the aircraft in ground and flight operations, a visual system providing an out of- the-flight deck view, and a force cueing motion system.

‘Flight Training Device’ (FTD) means a full size replica of a specific aircraft type’s instruments, equipment, panels and controls in an open flight deck area or an enclosed aircraft flight deck, including the assemblage of equipment and computer software programmes necessary to represent the aircraft in ground and flight conditions to the extent of the systems installed in the device. It does not require a force cueing motion or visual system, except in the case of helicopter FTD levels 2 and 3, where visual systems are required.

‘Flight and Navigation Procedures Trainer’ (FNPT) means a training device which represents the flight deck or cockpit environment, including the assemblage of equipment and computer programmes necessary to represent an aircraft type or class in flight operations to the extent that the systems appear to function as in an aircraft.

Bibliography

Commission Regulation (EU) No 1178/2011 as amended, laying down technical requirements and administrative procedures related to civil aviation aircrew Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Part-FCL Certification Specification of Helicopter FSTD-CS-FSTD (H).

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Download the previous leaflets:
EHEST HE 1 Training Leaflet – Safety considerations
http://easa.europa.eu/essi/ehest/wp-content/uploads/2012/04/HE1_Leaflet_safety_considerations_Training-DE.pdf
EHEST HE 2 Training Leaflet – Helicopter airmanship
http://easa.europa.eu/essi/ehest/wp-content/uploads/2011/12/HE2_leaflet_helicopter_airmanship_v1.pdf
EHEST HE 3 Training Leaflet – Off airfield landing site operations
http://easa.europa.eu/essi/ehest/wp-content/uploads/2012/01/HE3_Off-Airfield-Landing-Site-Operations-v10.pdf
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