EASA Certification of PCDS

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Manufacturing of Load Lifting Devices and HEC Equipment/PCDS since 1999

**ACM EASA Part 21 G Production Organisation**
Ch.21.G.0022 PO approval since 2014
Scope of work:
Parts and Appliances for Cargo Hook Systems, Load Lifting Devices and HEC-Systems

EASA world:
a jungle of requirements
Important to know:

EASA requirements are relevant for helicopter operators

Mountain rescuers, doctors, dog handlers and others are only participants (third parties)

Conflict potential deriving from EASA requirements: Third parties are highly involved in the rescue process but do not belong to the flight operation companies.

PCDS

Personnel-Carrying Device Systems

complex ... and ... simple
Simple PCDS means ...

Transport of 1 or max. 2 persons in accordance with EC Directive 89/686/EEC for PPE and compliant with the corresponding harmonised EN standards

- EN 361 Full body harnesses
- EN 362 Connectors
- EN 358 Working positions
- EN 1498 Rescue loops
- EN 1891 Low stretch Kernmantel ropes
- EN 12277 Mountaineering harnesses

Complex PCDS means ...

All other PCDS for the transport of 3 and more persons, all devices (also for 1 or 2 persons) not disposing of CE-conformity and/or not compliant with EN standards

- Fixed ropes systems > 2 persons / 200 kg WLL
- Horizontal nets
- Rescue cages
- Rescue bags
...
Important to know:

EASA accepts EC Directive 89/686/EEC and the corresponding EN Standards for PPEaffh within Europe – no compliance with USA/CAN

Most equipment of mountain rescuers, doctors, etc., is compliant with EN standards

But: these collaborators usually are third parties

Legal bases of the EASA world

4 relevant requirements:

- EASA CS 27, or 29.865(a) External Cargo
  Human External Cargo
  Requirements for calculation, test, work load, design load, ultimate load

- CR (EU) 748/2012 Part 21J DO
  Part 21 G PO
  Requirements for design data, manufacturing

- ED 2014/018/R Annex VIII Part-SPO
  Requirements for operation

- CR (EU) 1321/2013 Part 145
  Requirements for continuing airworthiness
or, more simply:

Specifications  Manufacturing  Operation  Maintenance

First step

Manufacturing

For development, design, testing and manufacturing are required:

a Design Organisation Approval (DOA)

and

a Production Organisation Approval (POA)

Major Change Approval - Supplement Type Certificate (STC) - EASA FORM 1

Exemption: simple PCDS

EC Type Examination Certificate - EC Conformity Declaration

That's all.
Second step

Specifications

CS-27./29.865 External Loads
AMC 27./29.865 HEC Ops within Europe

EASA Certification Memorandum CM-CS-005 PCDS

Classification of simple and complex PCDS, compliance procedures, labeling, calculation of static strength (minimum requirements)

Simple PCDS – minor change procedure
Complex PCDS – major change procedure (STC)

Examples

Label of a simple PCDS
EN 354 lanyard, 2 persons
EN 1498 rescue triangle
Third step

Operational requirements

Annex VII Part-SPO, AMC1 SPO.SPEC.HEC.100(c)(3)

«All additional equipment used, e.g. ropes, cables, mechanical hooks, swivel, nets, buckets […] should be manufactured according to officially recognised standards»

Note: this is the connecting link to EASA CM-CS-005 PCDS

and: «The operator is responsible for maintaining the serviceability of this equipment.»

Note: this is the connecting link to Part 145 Maintenance

Fourth step

Maintenance

Annex VII Part-SPO, AMC1 SPO.SPEC.HEC.100(c)(3)

«The operator is responsible for maintaining the serviceability of this equipment.»

Note: this is the connecting link to Part 145 Maintenance
Interfaces and conflicts

Manufacturing Specifications Operation Maintenance

The design and production process for complex PCDS is predefined. With EASA, this process takes a long time and is expensive.

But:
- The procedures are predefined.
- It is feasible to obtain approval.
- Approval is based on specific requirements.

Important: Simple PCDS are excluded from the EASA Part 21 design and production process.
Interfaces and conflicts

Manufacturing  Specifications  Operation  Maintenance

Complex PCDS: the procedure is predefined
Documents: FMS, ICA, STC and EASA FORM 1

Complex PCDS: the consequence is higher operation and maintenance costs.
Important: long-term planning necessary (purchasing, finance resources, storage)
**Interfaces and conflicts**

**Manufacturing**

Simple PCDS: regulations for operation and maintenance are complicated.

Minor change > apply to EASA or national authorities (????), paperwork, third parties, checking, audit, training

Note:
- an EC Type Examination Certificate is similar to an STC
- an EC Conformity Declaration is similar to an EASA FORM 1

- But: they are not the same (two different worlds)!

**Specifications**

**Operation**

**Maintenance**

In the context of Proposed AD 15-117, the operation of simple PCDS is difficult.

See also AD 2015-0069 referring to Goodrich hoists.
But how to handle rescue ops?

Operations
Operations can be handled, but with higher costs, more paperwork, more manpower. High standardisation required.
It's expensive but still manageable for the organisation.

Partners such as mountain rescuers
Are third parties. A very high investment/effort for their integration is needed.
It’s very expensive but maybe still manageable for the organisation.

Victims, patients
With or without PPE (harness, connectors etc.), there is no problem.
Arrange patients in approved equipment (e.g. rescue bag, horizontal net, rescue triangle) and the problem is solved. An exemption has been requested.

For further information, please contact

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Thank you!

Outlook for ICAR 2016

Tests of several rope types for HEC fixed rope operations

(270 – 800 kg HEC-WLL
Free fall tests from 15 cm and 100 cm)