

# Unit 122: Aviation Legislation

NOF level 3: BTEC National

Guided learning hours: 60

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## Unit abstract

This unit provides an overview of the regulatory framework, approval and certification issues and maintenance requirements for those who wish to practice as licensed engineers in the field of civil aircraft maintenance engineering. The unit has been designed to completely cover the knowledge requirements of the European Aviation Safety Agency (EASA) Part-66 module 10: Aviation Legislation. It includes material on the roles of the regulatory bodies, the aircraft maintenance requirements and the licensing and certification procedures that have a direct bearing upon the maintenance and operation of civil aircraft, within the UK and European community.

## Learning outcomes

On completion of this unit a learner should:

- 1 Know about the regulatory framework of the National and International authorities and the relationship between them
- 2 Understand the nature of Part-66 and Part-145 guidance material and their use in complying with the airworthiness requirements and maintenance regulations of EASA
- 3 Know about aircraft operation and certification requirements and the associated documentation
- 4 Understand the applicable National and International requirements and the composition and applicability of the EASA Part-M regulation for the continued airworthiness and maintenance of aircraft

## Unit content

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### 1 Know about the legislative and regulatory framework of the National and International aviation authorities and the relationship between them

*Regulatory bodies:* roles, responsibilities and relationships between the International Civil Aviation Organisation (ICAO), the European Aviation Safety Agency (EASA), the European Union member state National Aviation Authorities (NAA) and the Federal Aviation Administration (FAA)

*The Civil Aviation Authority:* the current and future role of the CAA as the UK's NAA eg Air Navigation Order (ANO), CAA safety regulation group, CAA implementation of European legislation, CAA responsibilities for approvals/certification of non-EU excluded aircraft, products and parts; the purpose and continued use of British Civil Airworthiness Requirements (BCAR) and the Joint Aviation Requirements (JAR)

*EASA legislation and regulations:* legislation and regulatory framework for the implementation of EU airworthiness regulations (eg 1592/2002 common airworthiness rules, 216/2008 basic regulation, 1702/2003 airworthiness and environmental certification rules, 2042/2003 continued airworthiness rules); relationship between JAR-OPS, Part-145, Part-66, Part-147 and Part-M

### 2 Understand the nature of Part-66 and Part-145 guidance material and their use in complying with the airworthiness requirements and maintenance regulations of EASA

*Nature of Part-66 compliance material for certifying staff licenses:* information contained in Part-66 guidance and compliance documentation; detailed requirements (knowledge, examination, experience, validity and privileges) eg for category 'A' licensed mechanic, category 'B1' (mechanical)/'B2' (avionic) and category 'C' licensed engineers

*Nature, roles and responsibilities of Part-145 approved maintenance organisations:* eg structure of an approved Part-145 organisation, role and responsibilities of key personnel, types of maintenance activities (line/hanger/workshop); Part-145 approval, certification and stores procedures (such as format of the company exposition, quality control, Certificate of Release to Service (CRS), Certificate of Maintenance Review (CMR), approved stores, bonded and quarantine stores)

### 3 Know about aircraft operation and certification requirements and the associated documentation

*JAR-OPS commercial air transportation:* nature of JAR-OPS regulations and documentation eg air operator's certificate, operator's responsibilities, documents to be carried, aircraft placarding (markings)

*Aircraft certification rules and documentation:* applicability and purpose of certification rules eg EASA certification specifications CS – 23/25/27/29, type certification, supplemental type certification, Part-21 design/production organisation approvals; aircraft certification documents eg certificate of airworthiness; certificate of registration; noise certificate; weight schedule; radio station licence and approvals

**4 Understand the applicable National and International requirements and the composition and applicability of the EASA Part-M regulation for the continued airworthiness and maintenance of aircraft**

*Part-M continuing airworthiness requirements:* purpose, applicability and implementation of requirements for organisations, personnel and specified EASA aircraft; nature and composition of Part-M (nine subparts) eg general, accountability, continuing airworthiness of aircraft, maintenance standards, component maintenance, maintenance organisation, continuing airworthiness management organisation, certificate of release to service, continuing validity of a certificate of airworthiness; implementation policy for Part-M, including approval of maintenance programmes for EASA aircraft operated commercially

*Applicable National (UK) and International requirements:* requirements for maintenance programmes, checks and inspections; associated documentation and dissemination of information eg master minimum equipment list, minimum equipment list, dispatch deviation list, airworthiness directives, service bulletins, manufacturers' service information, repair instructions, modification leaflets, maintenance manuals, structural repair manual, illustrated parts catalogue; other requirements eg for continuing airworthiness, test flights, ETOPS maintenance and despatch, all weather operations, category 2/3 operations and minimum equipment requirements

*NB: The above National and International requirements remain in force until superseded by the new EU EASA requirements due to be issued and come into force in September 2008*

## Grading grid

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all of the learning outcomes for the unit. The criteria for a pass grade describe the level of achievement required to pass this unit.

Grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
<p>P1 describe the roles and responsibilities of the ICAO, EASA, member states, NAA, and FAA and the relationship between them</p> <p>P2 explain the current and future role of the CAA, with respect to aircraft safety regulation, continuing airworthiness and the current and future use of the ANO, BCAR and JAR</p> <p>P3 explain the nature of EASA implementing rule 2042/2003 and the relationship between JAR OPS, Part-145, Part-66, Part- 147 and Part-M in implementing this rule</p> <p>P4 list the type of information contained in Part-66 certifying staff documentation and explain the detailed requirements necessary to practice as a category 'A' certifying mechanic</p> <p>P5 describe the structure of an approved Part-145 organisation and detail the roles and responsibilities of key personnel, required to comply with the requirements</p>	<p>M1 define the three EASA Part-66 'knowledge levels' for certifying staff and explain the depth and breadth of understanding and subsequent training required to meet the requirements for each of these levels</p> <p>M2 explain the differences in the requirements necessary to practice as a category 'B' or category 'C' licensed engineer</p> <p>M3 distinguish between the three different 'classes of store' and explain the circumstances under which each is used</p> <p>M4 explain how associated maintenance documents and manuals are controlled and amended to ensure they continue to meet national and international standards.</p>	<p>D1 explain the nature, role and significance of the CRS and detail the circumstances under which it may be signed to release the aircraft to service</p> <p>D2 investigate and report on the changes that will need to be made by organisations when required to maintain their commercial aircraft to EASA Part M Subpart D maintenance standards.</p>

Grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
<p>P6 explain the nature of the documents carried by commercial air transport aircraft operating under the European JAR-OPS requirements</p> <p>P7 explain the applicability and purpose of EACS - 23/25/27/29 rules and Part-21 approvals</p> <p>P8 explain the nature and use of the certificate of airworthiness and the certificate of release to service</p> <p>P9 explain the purpose, applicability and implementation of Part- M requirements for EASA aircraft and detail the composition of Part-M</p> <p>P10 explain the nature of the national and international standards for maintenance programmes, checks and inspections</p> <p>P11 detail the contents of the equipment lists and dispatch deviation list necessary to meet national and international requirements</p> <p>P12 describe the requirements necessary for ETOPS maintenance and dispatch.</p>		

## Essential guidance for tutors

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### Delivery

This unit has been designed to cover the knowledge requirements for the EASA Part-66 module 10: Aviation Legislation. As such the unit should be delivered towards the end of the programme. Tutors should currently be, or have recently been directly involved with aircraft maintenance engineering and be familiar with current JAR and EASA regulations, requirements and associated documentation.

The primary aim of this unit is to provide learners with a comprehensive knowledge of current maintenance and airworthiness legislation requirements. As such there is little room for anything other than a theoretical approach to delivery. There are, however, some opportunities to enhance learning by practically handling and gaining familiarity with airworthiness and maintenance documentation, in particular when delivering the learning material for learning outcomes 2 and 4.

The learning outcomes should be delivered in the order in which they appear. In this way learners will be led from the general over-arching legislative regulations to the particular requirements, procedures and associated documentation necessary for the maintenance activities themselves.

Learning outcome 1 is concerned with the legislative framework and the regulatory authorities charged with overseeing compliance with such legislation. Learners could make good use of the internet when researching legislation and the related regulations.

For learning outcome 2, learners will need to gain a thorough understanding of the guidance material for personnel licensing (EASA Part-66) and for the approval of maintenance organisations (EASA Part-145). Copies of these documents should be readily available for reference and tutors should ensure that the current versions are used as the focal point of learning.

Learning outcome 3 covers the regulations governing the operation of commercial aircraft and the certification documents required to operate such aircraft (currently under the auspices of JAA legislation but soon to be completely within the remit of EASA). The current state of flux should be emphasised to learners and as soon as the definitive permanent guidance material is available learners should be made aware of it and future learning based on it. Tutors therefore need to be aware of any future amendments and should ensure that they have direct contact with or indeed belong to a Part-145 establishment, to ensure currency at the time of change. EASA documentation is not available in hard copy at present, due to language difficulties with all member states, however interim guidance and compliance documentation is available on line at the EASA website and again, learners should be given internet access.

Learning outcome 4 introduces learners to the requirements for the continuing airworthiness and maintenance of aircraft. As with learning outcome 3 this subject is at the time of writing about to change from JAR/BCAR requirements to EASA Part-M requirements. The overarching legislation for this subject (Part-M) is given first in the syllabus and the present national/international detailed requirements for maintenance, follows. The content of this part of the learning outcome is unlikely to change substantially, however as soon as Part-M, subparts D and G etc. are available, all future teaching and learning should be based on them. Again the learning of this learning outcome will be substantially enhanced by using the

internet as a resource, not only to gain information but also to ensure its currency and to research information for possible assignment work.

### Assessment

It is expected that only a limited range of assessment methods will be used for this unit. Principally, evidence may be gathered from written responses to assignments and formal, timed assessments. One way of expanding the range of assessment may be to integrate it with other units (eg various practical activities on aircraft supported by full paper-based case study prepared by learners to determine and explain the regulations, documentation and associated implications of the work carried out).

To achieve a pass, learners must know about the roles and responsibilities of national and international regulatory authorities. In particular learners will need to know about the new role of EASA as the regulatory authority and standards setter for all matters relating to aircraft safety, operation, airworthiness and maintenance. They will also need to know about the role of member states and their NAAs in ensuring that EU regulations and requirements are met. Learners need to be aware of the current and future role of the CAA as EASA takes over full responsibility for aircraft safety regulation. The regulatory structure and statements of the implementing rules and their interrelationship also need to be known. An internet research assignment, or formal written assessment could be used to provide the necessary evidence to meet criteria P1, P2 and P3.

Learner will also need to have an understanding of EASA Part-66 and Part-145 requirements gained through studying the guidance material. Evidence for P4 and P5 might best be obtained from the written responses to a short, formal written assessment. This could be an 'open book' assessment, where hard copies of the guidance material are made available for use at the time of the assessment.

P6, P7 and P8 assess learners' knowledge of aircraft operation and certification. In view of the impending EASA takeover of these requirements, answers to a research-based assignment using the internet, might be the most appropriate way of obtaining the necessary evidence.

Learners must also have an understanding of the current applicable national/international and Part-M requirements for continuing airworthiness and associated maintenance. Again in view the full implementation of Part-M in the very near future, the written responses to a computer-based assignment (where the latest information may be obtained) might be the best way of obtaining the evidence for P9, P10, P11 and P12.

To achieve a merit grade, learners need to build on their understanding of the Part-66 and Part-145 requirements. In particular learners need to demonstrate a detailed understanding of the EASA 'knowledge levels' and training required to meet these levels (M1). They will need to be able to identify and explain the differing requirements needed to practice as a category 'B' or category 'C' engineer (M2). Learners will also need to demonstrate their knowledge of the requirements for the control and segregation of aircraft stores (M3). Evidence for M1, M2 and M3 may be best obtained through a formal written assessment that could be combined with the assessment for P4 and P5.

Learners finally need to demonstrate a thorough knowledge and understanding of the care and control of maintenance documentation and manuals needed to meet national and international standards (M4). Evidence of meeting this criterion may best be provided from answers to a research based assignment that could be set

independently or more appropriately be combined with an assignment covering criteria D1 and D2.

To achieve a distinction grade learners will need to demonstrate an in-depth understanding of the Part-M regulations and in particular the nature and significance of the CRS, including the competence requirements of those people who may sign it (D1). They will also need to show their understanding of the requirements and corresponding documentation concerned with the transfer from JAR/BCAR to EASA Part M requirements (D2). Evidence of achievement of D1 and D2 could be achieved through a research assignment, that may or may not include M2, as suggested above.

### **Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications**

This unit covers the knowledge and understanding associated with the European Aviation Safety Agency (EASA) aircraft maintenance licence Part- 66 syllabus for module 10: Aviation Legislation.

The unit can also be linked with other units in the programme that require an understanding of the documentation associated with practical tasks, such as *Unit 70: Aircraft Workshop Principles and Practice*, *Unit 74: Metallic Aircraft Materials, Structures and Repair*, *Unit 75: Non-Metallic Aircraft Materials, Manufacture and Repair* and structures *Unit 76: Aircraft Maintenance Practices*.

### **Essential resources**

Learner access to the following information resources is essential for the successful delivery of this unit:

#### **Websites:**

[www.caa.co.uk](http://www.caa.co.uk)

[www.easa.eu.int/](http://www.easa.eu.int/)

#### **Publications and guidance material (in hard or electronic copy):**

- EASA Implementing rules: Part-21 (Airworthiness and environmental certification of aircraft and related products, parts and appliances and certification of design and production organisations)
- EASA Part-66 Certifying staff
- EASA Part-145 Maintenance organisation approvals
- EASA Part-147 Training organisation requirements
- EASA Part-M (when fully available) Continuing airworthiness requirements
- Air navigation order (ANO)
- JAR-OPS Commercial air transport (general)
- Certifying specifications 23, 25, 27, 29 (for general aviation aeroplanes, large aeroplanes, small rotorcraft and large rotorcraft, respectively)
- Air Transport Association 100 system (Aircraft maintenance manuals, illustrated parts catalogues, structural repair manual)
- Airworthiness directives (AD)
- Airworthiness notices (AWN)
- Service bulletins (SB)
- Aircraft operator and maintenance organisation documentation
- Manufacturers' service information, repair instructions and modification leaflets.

## Key skills

Achievement of key skills is not a requirement of this qualification but it is encouraged. Suggestions of opportunities for the generation of level 3 key skill evidence are given here. Staff should check that learners have produced all the evidence required by part B of the key skills specifications when assessing this evidence. Learners may need to develop additional evidence elsewhere to fully meet the requirements of the key skills specifications.

Communication Level 3	
When learners are:	They should be able to develop the following key skills evidence:
<ul style="list-style-type: none"> <li>researching, identifying and explaining a range of aviation legislation and regulations.</li> </ul>	<p>C3.2 Read and synthesise information from at least <b>two</b> documents about the same subject. Each document must be a minimum of 1000 words long.</p> <p>C3.3 Write <b>two</b> different types of documents each one giving different information about complex subjects. One document must be at least 1000 words long.</p>
Information communication technology Level 3	
When learners are:	They should be able to develop the following key skills evidence:
<ul style="list-style-type: none"> <li>researching a range of aviation legislation and regulations.</li> </ul>	<p>ICT3.1 Search for information, using different sources, and multiple search criteria in at least one case.</p>