
Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) [View outstanding changes](#)

Commission Regulation (EU) No 1321/2014 of 26 November 2014
on the continuing airworthiness of aircraft and aeronautical products,
parts and appliances, and on the approval of organisations and
personnel involved in these tasks (Recast) (Text with EEA relevance)

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ANNEX III

(Part-66)

66.1 **[^{F1}CAA]**

(a) ^{F2}...

(b) The [^{F3}CAA] shall be responsible for defining:

1. the list of aircraft types; and
2. what airframe/engine combinations are included in each particular aircraft type rating.

Textual Amendments

F2 Annex 3 point 66.1(a) omitted (31.12.2020) by virtue of [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **269(3)(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

F3 Word in Annex 3 point 66.1(b) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **269(3)(c)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

SECTION A

TECHNICAL REQUIREMENTS

SUBPART ~~A~~ AIRCRAFT MAINTENANCE LICENCE

A

66.A.1 Scope

This section defines the aircraft maintenance licence and establishes the requirements for application, issue and continuation of its validity.

[^{F4}66.A.3 Licence categories and subcategories

Aircraft maintenance licences include the following categories and, where applicable, subcategories and system ratings:

(a) Category A, divided into the following subcategories:

- A1 Aeroplanes Turbine;
- A2 Aeroplanes Piston;
- A3 Helicopters Turbine;
- A4 Helicopters Piston.

(b) Category B1, divided into the following subcategories:

- B1.1 Aeroplanes Turbine;
- B1.2 Aeroplanes Piston;
- B1.3 Helicopters Turbine;
- B1.4 Helicopters Piston.

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(c) Category B2

The B2 licence is applicable to all aircraft.

(d) Category B2L

The B2L licence is applicable to all aircraft other than those in Group 1 as set out in Point 66.A.5(1) and is divided into the following ‘ system ratings ’ :

- communication/navigation (com/nav),
- instruments,
- autoflight,
- surveillance,
- airframe systems.

A B2L licence shall contain, as a minimum, one system rating.

(e) Category B3

The B3 licence is applicable to piston-engine non-pressurised aeroplanes of 2 000 kg Maximum Take-off Mass (MTOM) and below.

(f) Category L, divided into the following subcategories:

- L1C: composite sailplanes,
- L1: sailplanes,
- L2C: composite powered sailplanes and composite ELA1 aeroplanes,
- L2: powered sailplanes and ELA1 aeroplanes,
- L3H: hot-air balloons,
- L3G: gas balloons,
- L4H: hot-air airships,
- L4G: ELA2 gas airships,
- L5: gas airships other than ELA2.

(g) Category C

The C licence is applicable to aeroplanes and helicopters.]

Textual Amendments

- F4** Substituted by Commission Regulation (EU) 2018/1142 of 14 August 2018 amending Regulation (EU) No 1321/2014 as regards the introduction of certain categories of aircraft maintenance licences, the modification of the acceptance procedure of components from external suppliers and the modification of the maintenance training organisations' privileges (Text with EEA relevance).

[^{F4}66.A.5 Aircraft groups

For the purpose of ratings on aircraft maintenance licences, aircraft shall be classified into the following groups:

- (1) Group 1: complex motor-powered aircraft, helicopters with multiple engines, aeroplanes with maximum certified operating altitude exceeding FL290, aircraft equipped with fly-by-wire systems, gas airships other than ELA2 and other aircraft requiring an aircraft type rating when defined as such by the [^{F5}CAA].

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The [F⁵CAA] may decide to classify into Group 2, Group 3 or Group 4, as appropriate, an aircraft which meets the conditions set out in the first subparagraph, if it considers that the lower complexity of the particular aircraft justifies so.

- (2) Group 2: aircraft other than those in Group 1 belonging to the following subgroups:
- (i) subgroup 2a:
 - single turboprop engine aeroplanes,
 - those turbojet and multiple-turboprop aeroplanes classified by the [F⁵CAA] in this subgroup because of their lower complexity.
 - (ii) subgroup 2b:
 - single turbine engine helicopters,
 - those multiple turbine engine helicopters classified by the [F⁵CAA] in this subgroup because of their lower complexity.
 - (iii) subgroup 2c:
 - single piston engine helicopters,
 - those multiple piston engine helicopters classified by the [F⁵CAA] in this subgroup because of their lower complexity.
- (3) Group 3: piston engine aeroplanes other than those in Group 1.
- (4) Group 4: sailplanes, powered sailplanes, balloons and airships, other than those in Group 1.]

Textual Amendments

F5 Word in Annex 3 point 66.A.5 substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **270(2)** (with Sch. 3) (as amended by [S.I. 2019/1098](#), regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.A.10 Application

- (a) An application for an aircraft maintenance licence or change to such licence shall be made on [F⁶a CAA Form 19] (see Appendix V) in a manner established by the [F⁷CAA] and submitted thereto.
- (b) An application for the change to an aircraft maintenance licence shall be made to the [F⁸CAA] of the Member State that issued the aircraft maintenance licence.
- (c) In addition to the documents required in points 66.A.10(a), 66.A.10(b) and 66.B.105, as appropriate, the applicant for additional basic categories or subcategories to an aircraft maintenance licence shall submit his/her current original aircraft maintenance licence to the [F⁹CAA] together with the [F¹⁰CAA Form 19].
- (d) F¹¹ ...
- (e) F¹¹ ...
- (f) Each application shall be supported by documentation to demonstrate compliance with the applicable theoretical knowledge, practical training and experience requirements at the time of application.

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Textual Amendments

- F6** Words in Annex 3 point 66.A.10(a) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **270(3)(a)(i)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F7** Word in Annex 3 point 66.A.10(a) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **270(3)(a)(ii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F8** Word in Annex 3 point 66.A.10(b) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **270(3)(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F9** Word in Annex 3 point 66.A.10(c) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **270(3)(c)(i)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F10** Words in Annex 3 point 66.A.10(c) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **270(3)(c)(ii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F11** Annex 3 point 66.A.10(d)(e) omitted (31.12.2020) by virtue of [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **270(3)(d)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.A.15 Eligibility

An applicant for an aircraft maintenance licence shall be at least 18 years of age.

66.A.20 Privileges

- (a) The following privileges shall apply:
1. A category A aircraft maintenance licence permits the holder to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the certification authorisation referred to in point 145.A.35 of Annex II (Part-145). The certification privileges shall be restricted to work that the licence holder has personally performed in the maintenance organisation that issued the certification authorisation.
 2. A category B1 aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B1 support staff following:
 - maintenance performed on aircraft structure, powerplant and mechanical and electrical systems,
 - work on avionic systems requiring only simple tests to prove their serviceability and not requiring troubleshooting.

Category B1 includes the corresponding A subcategory.
 3. A category B2 aircraft maintenance licence shall permit the holder:
 - (i) to issue certificates of release to service and to act as B2 support staff for following:
 - maintenance performed on avionic and electrical systems, and

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— electrical and avionics tasks within powerplant and mechanical systems, requiring only simple tests to prove their serviceability; and

- (ii) to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the certification authorisation referred to in point 145.A.35 of Annex II (Part-145). This certification privilege shall be restricted to work that the licence holder has personally performed in the maintenance organisation which issued the certification authorisation and limited to the ratings already endorsed in the B2 licence.

The category B2 licence does not include any A subcategory.

4. [^{F4}A category B2L aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B2L support staff for the following:
- maintenance performed on electrical systems;
 - maintenance performed on avionics systems within the limits of the system ratings specifically endorsed on the licence, and
 - when holding the ‘ airframe system ’ rating, performance of electrical and avionics tasks within power plant and mechanical systems, requiring only simple tests to prove their serviceability.
5. A category B3 aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B3 support staff for the following:
- maintenance performed on aeroplane structure, power plant and mechanical and electrical systems; and
 - work on avionics systems requiring only simple tests to prove their serviceability and not requiring troubleshooting.]
6. [^{F12}A category L aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as L support staff for the following:
- maintenance performed on aircraft structure, power plant and mechanical and electrical systems;
 - work on radio, Emergency Locator Transmitters (ELT) and transponder systems; and
 - work on other avionics systems requiring simple tests to prove their serviceability.

Subcategory L2 includes subcategory L1. Any limitation to subcategory L2 in accordance with point 66.A.45(h) becomes also applicable to subcategory L1.

Subcategory L2C includes subcategory L1C.

7. A category C aircraft maintenance licence shall permit the holder to issue certificates of release to service following base maintenance of the aircraft. The privileges apply to the aircraft in its entirety.]
- (b) The holder of an aircraft maintenance licence may not exercise its privileges unless:

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1. in compliance with the applicable requirements of Annex I (Part-M) and Annex II (Part-145); and
2. in the preceding 2-year period he/she has, either had 6 months of maintenance experience in accordance with the privileges granted by the aircraft maintenance licence or, met the provision for the issue of the appropriate privileges; and
3. he/she has the adequate competence to certify maintenance on the corresponding aircraft; and
4. he/she is able to read, write and communicate to an understandable level in the language(s) in which the technical documentation and procedures necessary to support the issue of the certificate of release to service are written.

Textual Amendments

F12 Inserted by [Commission Regulation \(EU\) 2018/1142 of 14 August 2018 amending Regulation \(EU\) No 1321/2014 as regards the introduction of certain categories of aircraft maintenance licences, the modification of the acceptance procedure of components from external suppliers and the modification of the maintenance training organisations' privileges \(Text with EEA relevance\)](#).

66.A.25 Basic knowledge requirements

- (a) ^[F4]For licences other than categories B2L and L, an applicant for an aircraft maintenance licence, or for the addition of a category or subcategory to such a licence, shall demonstrate by examination a level of knowledge of the appropriate subject modules in accordance with Appendix I to Annex III (Part-66). The examination shall comply with the standard set out in Appendix II to Annex III (Part-66) and shall be conducted either by a training organisation appropriately approved in accordance with Annex IV (Part-147), or by the ^[F13]CAA].
- (b) ^[F4]An applicant for an aircraft maintenance licence in category L within a given subcategory, or for the addition of a different subcategory, shall demonstrate by examination a level of knowledge of the appropriate subject modules in accordance with Appendix VII to Annex III (Part-66). The examination shall comply with the standard set out in Appendix VIII to Annex III (Part-66) and shall be conducted by a training organisation appropriately approved in accordance with Annex IV (Part-147), by the ^[F13]CAA] or as agreed by the ^[F13]CAA].

The holder of an aircraft maintenance licence in subcategory B1.2 or category B3 is deemed to meet the basic knowledge requirements for a licence in subcategories L1C, L1, L2C and L2.

The basic knowledge requirements for subcategory L4H include the basic knowledge requirements for subcategory L3H.

The basic knowledge requirements for subcategory L4G include the basic knowledge requirements for subcategory L3G.

- (c) An applicant for an aircraft maintenance licence in category B2L for a particular ‘ system rating ’, or for the addition of another ‘ system rating ’, shall demonstrate by examination a level of knowledge of the appropriate subject modules in accordance

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with Appendix I to Annex III (Part-66). The examination shall comply with the standard set out in Appendix II to Annex III (Part-66) and shall be conducted either by a training organisation appropriately approved in accordance with Annex IV (Part-147), or by the [F13CAA].]

- (d) [F4The training courses and examinations shall have been passed within 10 years prior to the application for an aircraft maintenance licence or the addition of a category or subcategory to such a licence. Should this not be the case, examination credits may be obtained in accordance with point (e).
- (e) The applicant may apply to the [F13CAA] for full or partial examination credits for the basic knowledge requirements for:
- (i) basic knowledge examinations that do not meet the requirement laid down in point (d);
 - (ii) any other technical qualification considered by the [F13CAA] to be equivalent to the knowledge standard of Annex III (Part-66).
- Credits shall be granted in accordance with Subpart E of Section B of this Annex (Part-66).
- (f) Credits expire 10 years after they were granted to the applicant by the [F13CAA]. The applicant may apply for new credits after expiration.]

Textual Amendments

F13 Word in Annex 3 point 66.A.25 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 270(4) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.A.30 Basic experience requirements

- (a) An applicant for an aircraft maintenance licence shall have acquired:
1. for category A, subcategories B1.2 and B1.4 and category B3:
 - (i) 3 years of practical maintenance experience on operating aircraft, if the applicant has no previous relevant technical training; or
 - (ii) 2 years of practical maintenance experience on operating aircraft and completion of training considered relevant by the [F14CAA] as a skilled worker, in a technical trade; or
 - (iii) 1 year of practical maintenance experience on operating aircraft and completion of a basic training course approved in accordance with Annex IV (Part-147);
 2. for category B2 and subcategories B1.1 and B1.3:
 - (i) 5 years of practical maintenance experience on operating aircraft if the applicant has no previous relevant technical training; or
 - (ii) 3 years of practical maintenance experience on operating aircraft and completion of training considered relevant by the [F14CAA] as a skilled worker, in a technical trade; or

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- (iii) 2 years of practical maintenance experience on operating aircraft and completion of a basic training course approved in accordance with Annex IV (Part-147);

2a. [F12]for category B2L:

- (i) 3 years of practical maintenance experience in operating aircraft, covering the corresponding system rating(s), if the applicant has no previous relevant technical training; or
- (ii) 2 years of practical maintenance experience in operating aircraft, covering the corresponding system rating(s), and completion of training, considered relevant by the [F14CAA], as a skilled worker in a technical trade; or
- (iii) 1 year of practical maintenance experience in operating aircraft, covering the corresponding system rating(s), and completion of a Part-147 approved basic training course.

For the addition of (a) new system rating(s) to an existing B2L licence, 3 months of practical maintenance experience relevant to the new system rating(s) shall be required for each system rating added.

2b. for category L:

- (i) 2 years of practical maintenance experience in operating aircraft covering a representative cross section of maintenance activities in the corresponding subcategory;
- (ii) as a derogation from point (i), 1 year of practical maintenance experience in operating aircraft covering a representative cross section of maintenance activities in the corresponding subcategory, subject to the introduction of the limitation provided for in point 66.A.45(h)(ii)(3).

For the inclusion of an additional subcategory in an existing L licence, the experience required by points (i) and (ii) shall be 12 and 6 months respectively.

The holder of an aircraft maintenance licence in category/subcategory B1.2 or B3 is deemed to meet the basic experience requirements for a licence in subcategories L1C, L1, L2C and L2.]

3. [F15]for category C with respect to complex motor-powered aircraft:

- (i) 3 years of experience exercising category B1.1, B1.3 or B2 privileges on complex motor-powered aircraft or as support staff according to point 145.A.35, or, a combination of both; or
- (ii) 5 years of experience exercising category B1.2 or B1.4 privileges on complex motor-powered aircraft or as support staff according to point 145.A.35, or a combination of both;

4. For category C with respect to other than complex motor-powered aircraft: 3 years of experience exercising category B1 or B2 privileges on other

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than complex motor-powered aircraft or as support staff according to point 145.A.35, or a combination of both;]

5. for category C obtained through the academic route: an applicant holding an academic degree in a technical discipline, from a university or other higher educational institution recognised by the [F14CAA], 3 years of experience working in a civil aircraft maintenance environment on a representative selection of tasks directly associated with aircraft maintenance including 6 months of observation of base maintenance tasks.
- (b) An applicant for an extension to an aircraft maintenance licence shall have a minimum civil aircraft maintenance experience requirement appropriate to the additional category or subcategory of licence applied for as defined in Appendix IV to this Annex (Part-66).
 - (c) The experience shall be practical and involve a representative cross section of maintenance tasks on aircraft.
 - (d) At least 1 year of the required experience shall be recent maintenance experience on aircraft of the category/subcategory for which the initial aircraft maintenance licence is sought. For subsequent category/subcategory additions to an existing aircraft maintenance licence, the additional recent maintenance experience required may be less than 1 year, but shall be at least 3 months. The required experience shall be dependent upon the difference between the licence category/subcategory held and applied for. Such additional experience shall be typical of the new licence category/subcategory sought.
 - (e) Notwithstanding point (a), aircraft maintenance experience gained outside a civil aircraft maintenance environment shall be accepted when such maintenance is equivalent to that required by this Annex (Part-66) as established by the [F14CAA]. Additional experience of civil aircraft maintenance shall, however, be required to ensure adequate understanding of the civil aircraft maintenance environment.
 - (f) Experience shall have been acquired within the 10 years preceding the application for an aircraft maintenance licence or the addition of a category or subcategory to such a licence.

Textual Amendments

- F14** Word in Annex 3 point 66.A.30 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 270(4) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F15** Substituted by Commission Regulation (EU) 2015/1536 of 16 September 2015 amending Regulation (EU) No 1321/2014 as regards alignment of rules for continuing airworthiness with Regulation (EC) No 216/2008, critical maintenance tasks and aircraft continuing airworthiness monitoring (Text with EEA relevance).

66.A.40 Continued validity of the aircraft maintenance licence

- (a) The aircraft maintenance licence becomes invalid 5 years after its last issue or change, unless the holder submits his/her aircraft maintenance licence to the [F16CAA], in order to verify that the information contained in the licence is the same as that contained in the [F17CAA's records], pursuant to point 66.B.120.

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- (b) The holder of an aircraft maintenance licence shall complete the relevant parts of [F18CAA Form 19] (see Appendix V) and submit it with the holder's copy of the licence to the [F19CAA], unless the holder works in a maintenance organisation approved in accordance with Annex II (Part-145) that has a procedure in its exposition whereby such organisation may submit the necessary documentation on behalf of the aircraft maintenance licence holder.
- (c) Any certification privilege based upon a aircraft maintenance licence becomes invalid as soon as the aircraft maintenance licence is invalid.
- (d) The aircraft maintenance licence is only valid (i) when issued and/or changed by the [F20CAA] and (ii) when the holder has signed the document.

Textual Amendments

- F16** Word in Annex 3 point 66.A.40(a) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 270(5)(a)(i) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F17** Words in Annex 3 point 66.A.40(a) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 270(5)(a)(ii) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F18** Words in Annex 3 point 66.A.40(b) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 270(5)(b)(i) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F19** Word in Annex 3 point 66.A.40(b) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 270(5)(b)(ii) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F20** Word in Annex 3 point 66.A.40(d) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 270(5)(c) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

[F466.A.4] Endorsement with aircraft ratings

- (a) In order to be entitled to exercise certification privileges on a specific aircraft type, the holder of an aircraft maintenance licence needs to have their licence endorsed with the relevant aircraft ratings:
 - For category B1, B2 or C, the relevant aircraft ratings are the following:
 - (i) for Group 1 aircraft, the appropriate aircraft type rating;
 - (ii) for Group 2 aircraft, the appropriate aircraft type rating, manufacturer subgroup rating or full subgroup rating;
 - (iii) for Group 3 aircraft, the appropriate aircraft type rating or full group rating;
 - (iv) for Group 4 aircraft, for the category B2 licence, the full group rating.
 - For category B2L, the relevant aircraft ratings are the following:
 - (i) for Group 2 aircraft, the appropriate manufacturer subgroup rating or full subgroup rating;
 - (ii) for Group 3 aircraft, the full group rating;

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- (iii) for Group 4 aircraft, the full group rating.
 - For category B3, the relevant rating is ‘ piston-engine non-pressurised aeroplanes of 2 000 kg MTOM and below ’ .
 - For category L, the relevant aircraft ratings are the following:
 - (i) for subcategory L1C, the rating ‘ composite sailplanes ’ ;
 - (ii) for subcategory L1, the rating ‘ sailplanes ’ ;
 - (iii) for subcategory L2C, the rating ‘ composite powered sailplanes and composite ELA1 aeroplanes ’ ;
 - (iv) for subcategory L2, the rating ‘ powered sailplanes and ELA1 aeroplanes ’ ;
 - (v) for subcategory L3H, the rating ‘ hot-air balloons ’ ;
 - (vi) for subcategory L3G, the rating ‘ gas balloons ’ ;
 - (vii) for subcategory L4H, the rating ‘ hot-air airships ’ ;
 - (viii) for subcategory L4G, the rating ‘ ELA2 gas airships ’ ;
 - (ix) for subcategory L5, the appropriate airship type rating.
 - For category A, no rating is required, subject to compliance with the requirements of point 145.A.35 of Annex II (Part-145).
- (b) The endorsement of aircraft type ratings requires the satisfactory completion of one of the following:
 - the relevant category B1, B2 or C aircraft type training in accordance with Appendix III to Annex III (Part-66);
 - in the case of gas airship type ratings on a B2 or L5 licence, a type training approved by the [F21CAA] in accordance with point 66.B.130.
- (c) For other than category C licences, in addition to the requirements of point (b), the endorsement of the first aircraft type rating within a given category/subcategory requires satisfactory completion of the corresponding on-the-job training. This on-the-job training shall comply with Appendix III to Annex III (Part-66), except in the case of gas airships, where it shall be directly approved by the [F22CAA].
- (d) [F23] [X1] By derogation from points (b) and (c), for Group 2 and 3 aircraft, aircraft type ratings may also be endorsed on a licence after completing the following steps:
 - satisfactory completion of the relevant category B1, B2 or C aircraft type examination in accordance with Appendix III to this Annex (Part-66);
 - in the case of B1 and B2 category, demonstration of practical experience in the aircraft type. In that case, the practical experience shall include a representative cross section of maintenance activities relevant to the licence category.

In the case of a category C rating, for a person qualified through the academic route as referred to in point (a)(5) of point 66.A.30, the first relevant aircraft type examination shall be at the category B1 or B2 level.]]
- (e) For Group 2 aircraft:

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- (i) the endorsement of manufacturer subgroup ratings for category B1 and C licence holders requires complying with the aircraft type rating requirements for at least two aircraft types from the same manufacturer, which combined are representative of the applicable manufacturer subgroup;
 - (ii) the endorsement of full subgroup ratings for category B1 and C licence holders requires complying with the aircraft type rating requirements for at least three aircraft types from different manufacturers, which combined are representative of the applicable subgroup;
 - (iii) the endorsement of manufacturer subgroup and full subgroup ratings for category B2 and B2L licence holders requires demonstration of practical experience which shall include a representative cross section of maintenance activities relevant to the licence category and to the applicable aircraft subgroup and, in the case of the B2L licence, relevant to the applicable system rating(s);
 - (iv) by derogation from point (e)(iii), the holder of a B2 or B2L licence, endorsed with a full subgroup 2b, is entitled to be endorsed with a full subgroup 2c.
- (f) For Group 3 and 4 aircraft:
- (i) the endorsement of the full Group 3 rating for category B1, B2, B2L and C licence holders and the endorsement of the full Group 4 rating for B2 and B2L licence holders require demonstration of practical experience, which shall include a representative cross section of maintenance activities relevant to the licence category and to Group 3 or 4, as applicable;
 - (ii) for category B1, unless the applicant provides evidence of appropriate experience, Group 3 rating shall be subject to the following limitations, which shall be endorsed on the licence:
 - pressurised aeroplanes,
 - metal-structure aeroplanes,
 - composite-structure aeroplanes,
 - wooden-structure aeroplanes,
 - aeroplanes with metal-tubing structure covered with fabric;
 - (iii) by derogation from point (f)(i), the holder of a B2L licence, endorsed with a full subgroup 2a or 2b, is entitled to be endorsed with Groups 3 and 4.
- (g) For the B3 licence:
- (i) the endorsement of the rating ‘ piston engine non-pressurised aeroplanes of 2 000 kg MTOM and below ’ requires demonstration of practical experience, which shall include a representative cross section of maintenance activities relevant to the licence category;
 - (ii) unless the applicant provides evidence of appropriate experience, the rating referred to in point (i) shall be subject to the following limitations, which shall be endorsed on the licence:
 - wooden-structure aeroplanes,
 - aeroplanes with metal-tubing structure covered with fabric,
 - metal-structure aeroplanes,
 - composite-structure aeroplanes.

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

- (h) For all L licence subcategories, other than L5:
- (i) the endorsement of ratings requires demonstration of practical experience which shall include a representative cross section of maintenance activities relevant to the licence subcategory;
- (ii) unless the applicant provides evidence of appropriate experience, the ratings shall be subject to the following limitations, which shall be endorsed on the licence:
- (1) for ratings ‘ sailplanes ’ and ‘ powered sailplanes and ELA1 aeroplanes ’ :
- wooden-structure aircraft covered with fabric,
 - aircraft with metal-tubing structure covered with fabric,
 - metal-structure aircraft,
 - composite-structure aircraft,
- (2) for the rating ‘ gas balloons ’ :
- other than ELA1 gas balloons; and
- (3) if the applicant has only provided evidence of one-year experience in accordance with the derogation contained in point 66.A.30(a) (2b)(ii), the following limitation shall be endorsed on the licence:

complex maintenance tasks provided for in Appendix VII to Annex I (Part-M), standard changes provided for in point 21.A.90B of Annex I (Part-21) to Regulation (EU) No 748/2012 and standard repairs provided for in point 21.A.431B of Annex I (Part-21) to Regulation (EU) No 748/2012.

The holder of an aircraft maintenance licence in subcategory B1.2 endorsed with the Group 3 rating, or in category B3 endorsed with the rating ‘ piston engine non-pressurised aeroplanes of 2 000 kg MTOM and below ’, is deemed to meet the requirements for the issuance of a licence in subcategories L1 and L2 with the corresponding full ratings and with the same limitations as the B1.2/B3 licence held.]

Editorial Information

- X1** Substituted by [Corrigendum to Commission Implementing Regulation \(EU\) 2019/1383 of 8 July 2019 amending and correcting Regulation \(EU\) No 1321/2014 as regards safety management systems in continuing airworthiness management organisations and alleviations for general aviation aircraft concerning maintenance and continuing airworthiness management \(Official Journal of the European Union L 228 of 4 September 2019\)](#).

Textual Amendments

- F21** Word in Annex 3 point 66.A.45(b) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **270(6)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F22** Word in Annex 3 point 66.A.45(c) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **270(6)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

Changes to legislation: *There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes*

F23 Substituted by Commission Implementing Regulation (EU) 2019/1383 of 8 July 2019 amending and correcting Regulation (EU) No 1321/2014 as regards safety management systems in continuing airworthiness management organisations and alleviations for general aviation aircraft concerning maintenance and continuing airworthiness management (Text with EEA relevance).

66.A.50 Limitations

- (a) [^{F4}Limitations introduced on an aircraft maintenance licence are exclusions from the certification privileges and, in the case of limitations referred to in point 66.A.45, they affect the aircraft in its entirety.]
- (b) For limitations referred to in point 66.A.45, limitations shall be removed upon:
1. demonstration of appropriate experience; or
 2. after a satisfactory practical assessment performed by the [^{F24}CAA].
- (c) For limitations referred to in point 66.A.70, limitations shall be removed upon satisfactory completion of examination on those modules/subjects defined in the applicable conversion report referred to in point 66.B.300.

Textual Amendments

F24 Word in Annex 3 point 66.A.50(b)(2) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 270(7) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.A.55 Evidence of qualification

Personnel exercising certification privileges as well as support staff shall produce their licence, as evidence of qualification, within 24 hours upon request by an authorised person.

66.A.70 Conversion provisions

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SECTION B

PROCEDURES FOR [^{F26}THE CAA]

SUBPART GENERAL

A

66.B.1 Scope

This section establishes the procedures including the administrative requirements to be followed by the [^{F27}CAA].

Textual Amendments

F27 Word in Annex 3 point 66.B.1 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 272(2) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

66.B.10 [F28CAA]

(a) General

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Textual Amendments

F29 Words in Annex 3 point 66.B.10(a) omitted (31.12.2020) by virtue of The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 272(3)(b)(i) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

[F30The CAA] shall establish an adequate organisational structure to ensure compliance with this Annex (Part-66).

Textual Amendments

F30 Words in Annex 3 point 66.B.10(a) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 272(3)(b)(ii) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

(b) Resources

The [F31CAA] shall be appropriately staffed to ensure the implementation of the requirements of this Annex (Part-66).

Textual Amendments

F31 Word in Annex 3 point 66.B.10(b) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 272(3)(c) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

(c) Procedures

The [F32CAA] shall establish documented procedures detailing how compliance with this Annex (Part-66) is accomplished. These procedures shall be reviewed and amended to ensure continued compliance.

Textual Amendments

F32 Word in Annex 3 point 66.B.10(c) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 272(3)(c) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

Textual Amendments

F28 Word in Annex 3 point 66.B.10 heading substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 272(3)(a) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

66.B.20 Record-keeping

- (a) The [F33CAA] shall establish a system of record-keeping that allows adequate traceability of the process to issue, revalidate, change, suspend or revoke each aircraft maintenance licence.
- (b) These records shall include for each licence:
1. the application for an aircraft maintenance licence or change to that licence, including all supporting documentation;
 2. a copy of the aircraft maintenance licence including any changes;
 3. copies of all relevant correspondence;
 4. details of any exemption and enforcement actions;
 5. any report from other competent authorities relating to the aircraft maintenance licence holder;
 6. the records of examinations conducted by the [F34CAA];
 7. the applicable conversion report used for conversion;
 8. the applicable credit report used for crediting.
- (c) Records referred to in points 1 to 5 of point (b) shall be kept at least 5 years after the end of the licence validity.
- (d) Records referred to in points 6, 7 and 8 of point (b) shall be kept for an unlimited period.

Textual Amendments

F33 Word in Annex 3 point 66.B.20(a) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **272(4)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

F34 Word in Annex 3 point 66.B.20(b)(6) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **272(4)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.B.25 Mutual exchange of information

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Textual Amendments

F35 Annex 3 point 66.B.25 omitted (31.12.2020) by virtue of [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **272(5)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, **Sch. 5 para. 1(1)**

[F23][X1] 66.B.30 Exemptions

All exemptions granted in accordance with Article 71(1) of Regulation (EU) 2018/1139 shall be recorded and retained by the [F36CAA].]

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Textual Amendments

- F36** Word in Annex 3 point 66.B.30 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **272(6)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

SUBPART *ISSUE OF AN AIRCRAFT MAINTENANCE LICENCE*

B

This Subpart provides the procedures to be followed by the [^{F37}CAA] to issue, change or continue an aircraft maintenance licence.

Textual Amendments

- F37** Word in Annex 3 s. B substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **273(2)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.B.100 Procedure for the issue of an aircraft maintenance licence by the [^{F38}CAA]

- (a) On receipt of [^{F39}CAA Form 19] and any supporting documentation, the [^{F40}CAA] shall verify [^{F41}CAA Form 19] for completeness and ensure that the experience claimed meets the requirement of this Annex (Part-66).
- (b) [^{F42}The [^{F42}CAA] shall verify an applicant's examination status and/or confirm the validity of any credits to ensure that all module requirements of Appendix I or Appendix VII, as applicable, have been met as required by this Annex (Part-66).]
- (c) When having verified the identity and date of birth of the applicant and being satisfied that the applicant meets the standards of knowledge and experience required by this Annex (Part-66), the [^{F42}CAA] shall issue the relevant aircraft maintenance licence to the applicant. The same information shall be kept on [^{F42}CAA] records.
- (d) In the case where aircraft types or groups are endorsed at the time of the issuance of the first aircraft maintenance licence, the [^{F42}CAA] shall verify compliance with point 66.B.115.

Textual Amendments

- F39** Words in Annex 3 point 66.B.100(a) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **273(3)(b)(i)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F40** Word in Annex 3 point 66.B.100(a) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **273(3)(b)(ii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F41** Words in Annex 3 point 66.B.100(a) substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **273(3)(b)(iii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F42** Word in Annex 3 point 66.B.100 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **273(3)(c)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Textual Amendments

F38 Word in Annex 3 point 66.B.100 heading substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 273(3)(a) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.B.105 Procedure for the issue of an aircraft maintenance licence via a maintenance organisation approved in accordance with Annex II (Part-145)

- (a) A maintenance organisation approved in accordance with Annex II (Part-145), when authorised to carry out this activity by the [F43CAA], may (i) prepare the aircraft maintenance licence on behalf of the [F43CAA] or (ii) make recommendations to the [F43CAA] regarding the application from an individual for a aircraft maintenance licence so that the [F43CAA] may prepare and issue such licence.
- (b) Maintenance organisations referred to in point (a) shall ensure compliance with points 66.B.100 (a) and (b).
- (c) In all cases, the aircraft maintenance licence can only be issued to the applicant by the [F43CAA].

Textual Amendments

F43 Word in Annex 3 point 66.B.105 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 273(4) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

[F466.B.1] Procedure for the change of an aircraft maintenance licence to include an additional basic category or subcategory

- (a) At the completion of the procedures specified in points 66.B.100 or 66.B.105, the [F44CAA] shall endorse the additional basic category, subcategory or, for category B2L, system rating(s) on the aircraft maintenance licence by stamp and signature or shall reissue the licence.
- (b) The record system of the [F44CAA] shall be changed accordingly.
- (c) Upon request by the applicant, the [F44CAA] shall replace a licence in category B2L with a licence in category B2 endorsed with the same aircraft rating(s) when the holder has demonstrated both of the following:
 - (i) by examination the differences between the basic knowledge corresponding to the B2L licence held and the basic knowledge of the B2 licence, as set out in Appendix I;
 - (ii) the practical experience required in Appendix IV.
- (d) In the case of a holder of an aircraft maintenance licence in subcategory B1.2 endorsed with the Group 3 rating or in category B3 endorsed with the rating ‘ piston engine non-pressurised aeroplanes of 2 000 kg MTOM and below ’, the [F44CAA] shall issue, upon application, a fully rated licence in subcategories L1 and L2, with the same limitations as the B1.2/B3 licence held.]

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Textual Amendments

F44 Word in Annex 3 point 66.B.110 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 273(4) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.B.115 Procedure for the change of an aircraft maintenance licence to include an aircraft rating or to remove limitations

- (a) On receipt of a satisfactory [F45CAA Form 19] and any supporting documentation demonstrating compliance with the requirements of the applicable rating together with the accompanying aircraft maintenance licence, the [F46CAA] shall either:
1. endorse the applicant's aircraft maintenance licence with the applicable aircraft rating; or
 2. reissue the said licence to include the applicable aircraft rating; or
 3. remove the applicable limitations in accordance with point 66.A.50.
- The [F46CAA] record system shall be changed accordingly.
- (b) In the case where the complete type training is not conducted by maintenance training organisation appropriately approved in accordance with Annex IV (Part-147), the [F47CAA] shall be satisfied that all type training requirements are complied with before the type rating is issued.
- (c) In the case where the On the Job Training is not required, the aircraft type rating shall be endorsed based on a Certificate of Recognition issued by a maintenance training organisation approved in accordance with Annex IV (part-147).
- (d) In the case where the aircraft type training is not covered by a single course, the [F48CAA] shall be satisfied prior to the type rating endorsement that the content and length of the courses fully satisfy the scope of the licence category and that the interface areas have been appropriately addressed.
- (e) In the case of differences training, the [F49CAA] shall be satisfied that (i) the applicant's previous qualification, supplemented by (ii) either a course approved in accordance with Annex IV (Part-147) or a course directly approved by the [F49CAA], are acceptable for type rating endorsement.
- (f) [F4]The [F50CAA] shall ensure that compliance with the practical elements of the type training is demonstrated by one of the following:
- (i) by the provision of detailed practical training records or a logbook provided by the organisation which delivered the course directly approved by the [F50CAA] in accordance with point 66.B.130;
 - (ii) where available, by a training certificate, covering the practical training element, issued by a maintenance training organisation appropriately approved in accordance with Annex IV (Part-147).]

(g) Aircraft type endorsement shall use the aircraft type ratings specified by the [F51CAA].

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Textual Amendments

- F45** Words in Annex 3 point 66.B.115(a) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **273(5)(a)(i)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F46** Word in Annex 3 point 66.B.115(a) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **273(5)(a)(ii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F47** Word in Annex 3 point 66.B.115(b) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **273(5)(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F48** Word in Annex 3 point 66.B.115(d) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **273(5)(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F49** Word in Annex 3 point 66.B.115(e) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **273(5)(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F50** Word in Annex 3 point 66.B.115(f) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **273(5)(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F51** Word in Annex 3 point 66.B.115(g) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **273(5)(c)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.B.120 Procedure for the renewal of an aircraft maintenance licence validity

- (a) The ^[F52]CAA shall compare the holder's aircraft maintenance licence with the ^[F52]CAA records and verify any pending revocation, suspension or change action pursuant to point 66.B.500. If the documents are identical and no action is pending pursuant to point 66.B.500, the holder's copy shall be renewed for 5 years and the file endorsed accordingly.
- (b) If the ^[F52]CAA records are different from the aircraft maintenance licence held by the licence holder:
1. the ^[F52]CAA shall investigate the reasons for such differences and may choose not to renew the aircraft maintenance licence.
 2. the ^[F52]CAA shall inform the licence holder and any known maintenance organisation approved in accordance with Annex I (Part-M) Subpart F or Annex II (Part-145) that may be directly affected of such fact.
 3. the ^[F52]CAA shall, if necessary, take action in accordance with point 66.B.500 to revoke, suspend or change the licence in question.

Textual Amendments

- F52** Word in Annex 3 point 66.B.120 substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **273(6)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.B.125 Procedure for the conversion of licences including group ratings

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

- (a) Individual aircraft type ratings already endorsed on the aircraft maintenance licence referred to in point 4 of Article 5 shall remain on the licence and shall not be converted to new ratings unless the licence holder fully meets the requirements for endorsement defined in point 66.A.45 of this Annex (Part-66) for the corresponding group/sub-group ratings.
- (b) The conversion shall be performed in accordance with the following conversion table:
1. ^[F4c]for category B1 or C:
 - helicopter piston engine, full group: converted to ‘ full subgroup 2c ’ plus the aircraft type ratings for those single piston engine helicopters which are in Group 1;
 - helicopter piston engine, manufacturer group: converted to the corresponding ‘ manufacturer subgroup 2c ’ plus the aircraft type ratings for those single piston engine helicopters of that manufacturer which are in Group 1;
 - helicopter turbine engine, full group: converted to ‘ full subgroup 2b ’ plus the aircraft type ratings for those single turbine engine helicopters which are in Group 1;
 - helicopter turbine engine, manufacturer group: converted to the corresponding ‘ manufacturer subgroup 2b ’ plus the aircraft type ratings for those single turbine engine helicopters of that manufacturer which are in Group 1;
 - aeroplane single piston engine — metal structure, either full group or manufacturer group: converted to ‘ full group 3 ’ . For the B1 licence, the following limitations shall be included: composite-structure aeroplanes, wooden-structure aeroplanes, and metal-tubing and fabric aeroplanes;
 - aeroplane multiple piston engines — metal structure, either full group or manufacturer group: converted to ‘ full group 3 ’ plus the aircraft type ratings for those aeroplanes with multiple piston engines of the corresponding full/manufacturer group which are in Group 1. For the B1 licence, the following limitations shall be included: composite-structure aeroplanes, wooden-structure aeroplanes and metal-tubing and fabric aeroplanes;
 - aeroplane single piston engine — wooden structure, either full group or manufacturer group: converted to ‘ full group 3 ’ . For the B1 licence, the following limitations shall be included: pressurised aeroplanes, metal-structure aeroplanes, composite-structure aeroplanes and metal-tubing and fabric aeroplanes;
 - aeroplane multiple piston engines — wooden structure, either full group or manufacturer group: converted to ‘ full group 3 ’ . For the B1 licence, the following limitations shall be included: pressurised aeroplanes, metal-structure aeroplanes, composite-structure aeroplanes and metal-tubing and fabric aeroplanes;
 - aeroplane single piston engine — composite structure, either full group or manufacturer group: converted to ‘ full group 3 ’ . For the B1 licence, the following limitations shall be included: pressurised aeroplanes, metal-structure aeroplanes, wooden-structure aeroplanes and metal-tubing and fabric aeroplanes;
 - aeroplane multiple piston engines — composite structure, either full group or manufacturer group: converted to ‘ full group 3 ’ .

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

- For the B1 licence, the following limitations shall be included: pressurised aeroplanes, metal-structure aeroplanes, wooden-structure aeroplanes and metal-tubing and fabric aeroplanes;
- aeroplane turbine — single engine, full group: converted to ‘ full sub-group 2a ’ plus the aircraft type ratings for those single turboprop aeroplanes which did not require an aircraft type rating in the previous system and are in Group 1;
 - aeroplane turbine — single engine, manufacturer group: converted to the corresponding ‘ manufacturer subgroup 2a ’ plus the aircraft type ratings for those single turboprop aeroplanes of that manufacturer which did not require an aircraft type rating in the previous system and are in Group 1;
 - aeroplane turbine — multiple engines, full group: converted to the aircraft type ratings for those aeroplanes with multiple turboprop engines which did not require an aircraft type rating in the previous system.]
2. for category B2:
- aeroplane: converted to ‘ full sub-group 2a ’ and ‘ full group 3 ’, plus the aircraft type ratings for those aeroplanes which did not require an aircraft type rating in the previous system and are in group 1,
 - helicopter: converted to ‘ full sub-groups 2b and 2c ’, plus the aircraft type ratings for those helicopters which did not require an aircraft type rating in the previous system and are in group 1;
3. for category C:
- aeroplane: converted to ‘ full sub-group 2a ’ and ‘ full group 3 ’, plus the aircraft type ratings for those aeroplanes which did not require an aircraft type rating in the previous system and are in group 1,
 - helicopter: converted to ‘ full sub-groups 2b and 2c ’, plus the aircraft type ratings for those helicopters which did not require an aircraft type rating in the previous system and are in group 1.
- (c) If the licence was subject to limitations following the conversion process referred to in point 66.A.70, these limitations shall remain on the licence, unless they are removed under the conditions defined in the relevant conversion report referred to in point 66.B.300.

[^{F4}66.B.130] **Procedure for the direct approval of aircraft type training**

- (a) In the case of type training for aircraft other than airships, the [^{F53}CAA] may approve aircraft type training not conducted by a maintenance training organisation approved in accordance with Annex IV (Part-147), pursuant to point 1 of Appendix III to this Annex (Part-66). In such case, the [^{F53}CAA] shall have a procedure to ensure that the aircraft type training complies with Appendix III to this Annex (Part-66).
- (b) In the case of type training for airships in Group 1, the courses shall be directly approved by the [^{F53}CAA] in all cases. The [^{F53}CAA] shall have a procedure to ensure that the syllabus of the airship-type training covers all the elements contained in the maintenance data from the Design Approval Holder (DAH).]]

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Textual Amendments

F53 Word in Annex 3 point 66.B.130 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 273(6) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

SUBPART EXAMINATIONS

C

This Subpart provides the procedures to be followed for the examinations conducted by the [F54CAA].

Textual Amendments

F54 Word in Annex 3 s. B subpart C heading substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 274 (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.B.200 Examination by the [F55CAA]

- (a) All examination questions shall be kept in a secure manner prior to an examination, to ensure that candidates will not know which particular questions will form the basis of the examination.
- (b) The [F55CAA] shall nominate:
 1. persons who control the questions to be used for each examination;
 2. examiners who shall be present during all examinations to ensure the integrity of the examination.
- (c) [F54Basic examinations shall follow the standard specified in Appendices I and II or in Appendices VII and VIII to this Annex (Part-66), as applicable.]
- (d) Type training examinations and type examinations shall follow the standard specified in Appendix III to this Annex (Part-66).
- (e) New essay questions shall be raised at least every 6 months and questions already used withdrawn or rested from use. A record of the questions used shall be retained in the records for reference.
- (f) All examination papers shall be handed out at the start of the examination to the candidate and handed back to the examiner at the end of the allotted examination time period. No examination paper may be removed from the examination room during the allotted examination time period.
- (g) Apart from specific documentation needed for type examinations, only the examination paper may be available to the candidate during the examination.
- (h) Examination candidates shall be separated from each other so that they cannot read each other's examination papers. They may not speak to any person other than the examiner.

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

- (i) Candidates who are proven to be cheating shall be banned from taking any further examination within 12 months of the date of the examination in which they were found cheating.

Textual Amendments

F55 Word in Annex 3 s. B subpart C substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **274** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), **12**); 2020 c. 1, **Sch. 5 para. 1(1)**

SUBPART ~~CONVERSION OF CERTIFYING STAFF QUALIFICATIONS~~

D

This Subpart provides the procedures for the conversion of certifying staff qualifications referred to in point 66.A.70 to aircraft maintenance licences.

66.B.300 General

- (a) ^{F56} ...
- (b) The [^{F57}CAA] may only perform the conversion in accordance with a conversion report established pursuant to points 66.B.305 or 66.B.310, as applicable.
- (c) Conversion reports shall be either (i) developed by the [^{F58}CAA] or (ii) approved by the [^{F58}CAA] to ensure compliance with this Annex (Part-66).
- (d) Conversion reports together with any change of these shall be kept on record by the [^{F59}CAA] in accordance with point 66.B.20.

Textual Amendments

F56 Annex 3 point 66.B.300(a) omitted (31.12.2020) by virtue of [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **275(a)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), **12**); 2020 c. 1, Sch. 5 para. 1(1)

F57 Word in Annex 3 point 66.B.300(b) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **275(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), **12**); 2020 c. 1, Sch. 5 para. 1(1)

F58 Word in Annex 3 point 66.B.300(c) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **275(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), **12**); 2020 c. 1, Sch. 5 para. 1(1)

F59 Word in Annex 3 point 66.B.300(d) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **275(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), **12**); 2020 c. 1, Sch. 5 para. 1(1)

66.B.305 Conversion report for national qualifications

- (a) The conversion report for national certifying staff qualifications shall describe the scope of each type of qualification, including the associated national licence, if any, the associated privileges and include a copy of the relevant national regulations defining these.
- (b) The conversion report shall show for each type of qualification referred to in point (a):
1. to which aircraft maintenance licence it will be converted; and

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

2. which limitations shall be added in accordance with points 66.A.70(c) or (d), as applicable; and
3. the conditions to remove the limitations, specifying the module/subjects on which examination is needed to remove the limitations and obtain a full aircraft maintenance licence, or to include an additional (sub-) category. This shall include the modules defined in [^{F4}Appendix I] to this Annex (Part-66) not covered by the national qualification.

66.B.310 Conversion report for approved maintenance organisations authorisations

- (a) For each approved maintenance organisation concerned, the conversion report shall describe the scope of each type of authorisation issued by the maintenance organisation and include a copy of the relevant approved maintenance organisation's procedures for the qualification and the authorisation of certifying staff on which the conversion process is based.
- (b) The conversion report shall show for each type of authorisation referred to in point (a):
 1. to which aircraft maintenance licence it will be converted, and
 2. which limitations shall be added in accordance with points 66.A.70(c) or (d), as applicable, and
 3. the conditions to remove the limitations, specifying the module/subjects on which examination is needed to remove the limitations and obtain a full aircraft maintenance licence, or to include an additional (sub-) category. This shall include the modules defined in Appendix III to this Annex (Part-66) not covered by the national qualification.

SUBPART EXAMINATION CREDITS

E

This Subpart provides the procedures for granting examination credits referred to in point 66.A.25(c).

66.B.400 General

- (a) The [^{F60}CAA] may only grant credit on the basis of a credit report prepared in accordance with point 66.B.405.
- (b) The credit report shall be either (i) developed by the [^{F60}CAA] or (ii) approved by the [^{F60}CAA] to ensure compliance with this Annex (Part-66).
- (c) Credit reports together with any change of these shall be dated and kept on record by the [^{F60}CAA] in accordance with point 66.B.20.

Textual Amendments

F60 Word in Annex 3 point 66.B.400 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 276(2) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

[^{F4}66.B.405] Examination credit report

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

- (a) The credit report shall include a comparison between the following:
- (i) the modules, submodules, subjects and knowledge levels contained in Appendices I or VII to this Annex (Part-66), as applicable;
 - (ii) the syllabus of the technical qualification concerned, relevant to the particular category being sought.

This comparison shall state whether compliance has been demonstrated and contain the justifications for each statement.

- (b) ^{F61} ...
- (c) No credit can be granted unless there is a statement of compliance for each module and submodule, indicating where the equivalent standard can be found in the technical qualification.
- (d) The [^{F62}CAA] shall check on a regular basis whether the following have changed:
- (i) the national qualification standard;
 - (ii) Appendices I or VII to this Annex (Part-66), as applicable.

The [^{F62}CAA] shall also assess if changes to the credit report are consequently required. Such changes shall be documented, dated and recorded.]

Textual Amendments

F61 Annex 3 point 66.B.405(b) omitted (31.12.2020) by virtue of [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **276(3)(a)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

F62 Word in Annex 3 point 66.B.405(d) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **276(3)(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

66.B.410 Examination credit validity

- (a) The [^{F63}CAA] shall notify to the applicant in writing any credits granted together with the reference to the credit report used.
- (b) Credits shall expire 10 years after they are granted.
- (c) [^{F4}Upon expiration of the credits, the applicant may apply for new credits. The [^{F63}CAA] shall extend the validity of the credits for an additional period of 10 years without further consideration if the basic knowledge requirements defined in Appendices I or VII to this Annex (Part-66), as applicable, have not been changed.]

Textual Amendments

F63 Word in Annex 3 point 66.B.410 substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **276(4)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

SUBPART CONTINUING OVERSIGHT

F

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

This Subpart describes the procedures for the continuing oversight of the aircraft maintenance licence and in particular for the revocation, suspension or limitation of the aircraft maintenance licence.

66.B.500 Revocation, suspension or limitation of the aircraft maintenance licence

[^{F64}The CAA] shall suspend, limit or revoke the aircraft maintenance licence where it has identified a safety issue or if it has clear evidence that the person has carried out or been involved in one or more of the following activities:

Textual Amendments

F64 Words in Annex 3 point 66.B.500 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 277 (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

1. obtaining the aircraft maintenance licence and/or the certification privileges by falsification of documentary evidence;
2. failing to carry out requested maintenance combined with failure to report such fact to the organisation or person who requested the maintenance;
3. failing to carry out required maintenance resulting from own inspection combined with failure to report such fact to the organisation or person for whom the maintenance was intended to be carried out;
4. negligent maintenance;
5. falsification of the maintenance record;
6. issuing a certificate of release to service knowing that the maintenance specified on the certificate of release to service has not been carried out or without verifying that such maintenance has been carried out;
7. carrying out maintenance or issuing a certificate of release to service when adversely affected by alcohol or drugs;
8. issuing certificate of release to service while not in compliance with Annex I (Part-M), Annex II (Part-145) or Annex III (Part-66).

Textual Amendments

F26 Words in Annex 3 s. B heading substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 271 (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

Textual Amendments

F1 Word in Annex 3 heading substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 269(3)(a) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

[^{F4}Appendix I

Basic Knowledge Requirements

(except for category L licence)

1. **Knowledge levels for category A, B1, B2, B2L, B3 and C aircraft maintenance licences**

Basic knowledge for categories A, B1, B2, B2L and B3 is indicated by knowledge levels (1, 2 or 3) of each applicable subject. Category C applicants shall meet either the category B1 or the category B2 basic knowledge levels.]

The knowledge level indicators are defined on 3 levels as follows:

— *LEVEL 1: A familiarisation with the principal elements of the subject.*

Objectives:

- (a) The applicant should be familiar with the basic elements of the subject.
- (b) The applicant should be able to give a simple description of the whole subject, using common words and examples.
- (c) The applicant should be able to use typical terms.

— *LEVEL 2: A general knowledge of the theoretical and practical aspects of the subject and an ability to apply that knowledge.*

Objectives:

- (a) The applicant should be able to understand the theoretical fundamentals of the subject.
- (b) The applicant should be able to give a general description of the subject using, as appropriate, typical examples.
- (c) The applicant should be able to use mathematical formulae in conjunction with physical laws describing the subject.
- (d) The applicant should be able to read and understand sketches, drawings and schematics describing the subject.
- (e) The applicant should be able to apply his knowledge in a practical manner using detailed procedures.

— *LEVEL 3: A detailed knowledge of the theoretical and practical aspects of the subject and a capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner.*

Objectives:

- (a) The applicant should know the theory of the subject and interrelationships with other subjects.
- (b) The applicant should be able to give a detailed description of the subject using theoretical fundamentals and specific examples.

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

- (c) The applicant should understand and be able to use mathematical formulae related to the subject.
- (d) The applicant should be able to read, understand and prepare sketches, simple drawings and schematics describing the subject.
- (e) The applicant should be able to apply his knowledge in a practical manner using manufacturer's instructions.
- (f) The applicant should be able to interpret results from various sources and measurements and apply corrective action where appropriate.

[^{F42}. **Modularisation**

Qualification on basic subjects for each aircraft maintenance licence category or subcategory shall be in accordance with the following matrix, where applicable subjects are indicated by an ' X ' :

For categories A, B1 and B3:

Subject module	A or B1 aeroplane with:		A or B1 helicopter with:		B3
	Turbine engine(s)	Piston engine(s)	Turbine engine(s)	Piston engine(s)	Piston engine non-pressurised aeroplanes of 2 000 kg MTOM and below
1	X	X	X	X	X
2	X	X	X	X	X
3	X	X	X	X	X
4	X	X	X	X	X
5	X	X	X	X	X
6	X	X	X	X	X
7A	X	X	X	X	
7B					X
8	X	X	X	X	X
9A	X	X	X	X	
9B					X
10	X	X	X	X	X
11A	X				
11B		X			
11C					X

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

12			X	X	
13					
14					
15	X		X		
16		X		X	X
17A	X	X			
17B					X

For categories B2 and B2L:

Subject module/ submodules	B2	B2L
1	X	X
2	X	X
3	X	X
4	X	X
5	X	X
6	X	X
7A	X	X
7B		
8	X	X
9A	X	X
9B		
10	X	X
11A		
11B		
11C		
12		
13.1 and 13.2	X	X
13.3(a)	X	X (for system rating ‘ Autoflight ’)
13.3(b)	X	
13.4(a)	X	X (for system rating ‘ Com/Nav ’)
13.4(b)	X	X (for system rating ‘ Surveillance ’)
13.4(c)	X	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

13.5	X	X
13.6	X	
13.7	X	X (for system rating ‘Autoflight’)
13.8	X	X (for system rating ‘Instruments’)
13.9	X	X
13.10	X	
13.11 to 13.18	X	X (for system rating ‘Airframe systems’)
13.19 to 13.22	X	
14	X	X (for system ratings ‘Instruments’ and ‘Airframe systems’)
15		
16		
17A		
17B]		

MODULE MATHEMATICS

1.

	LEVEL			
	A	B1	[^{F4} B2 B2L]	B3
1.1 <i>Arithmetic</i>	1	2	2	2
Arithmetical terms and signs, methods of multiplication and division, fractions and decimals, factors and multiples, weights, measures and conversion factors, ratio and proportion, averages and percentages, areas and volumes, squares, cubes,				

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

	square and cube roots.				
1.2	<i>Algebra</i>				
(a)	Evaluating simple algebraic expressions, addition, subtraction, multiplication and division, use of brackets, simple algebraic fractions;	1	2	2	2
(b)	Linear equations and their solutions; Indices and powers, negative and fractional indices; Binary and other applicable numbering systems; Simultaneous equations and second degree equations with one unknown; Logarithms.	—	1	1	1
1.3	<i>Geometry</i>				
(a)	Simple geometrical constructions;	—	1	1	1
(b)	Graphical representation; nature and uses of graphs,	2	2	2	2

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

	graphs of equations/functions;				
(c)	Simple trigonometry; trigonometrical relationships, use of tables and rectangular and polar coordinates.	—	2	2	2

MODULE PHYSICS

2.

	LEVEL			
	A	B1	[^{F4} B2 B2L]	B3
2.1 <i>Matter</i>	1	1	1	1
Nature of matter: the chemical elements, structure of atoms, molecules;				
Chemical compounds;				
States: solid, liquid and gaseous;				
Changes between states.				
2.2 <i>Mechanics</i>				
2.2.1 <i>Statics</i>	1	2	1	1
Forces, moments and couples, representation as vectors;				
Centre of gravity;				

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Elements of theory of stress, strain and elasticity: tension, compression, shear and torsion;				
Nature and properties of solid, fluid and gas;				
Pressure and buoyancy in liquids (barometers).				
2.2.2 <i>Kinetics</i>	1	2	1	1
Linear movement: uniform motion in a straight line, motion under constant acceleration (motion under gravity);				
Rotational movement: uniform circular motion (centrifugal/centripetal forces);				
Periodic motion: pendular movement;				
Simple theory of vibration, harmonics and resonance;				
Velocity ratio, mechanical advantage and efficiency.				
2.2.3 <i>Dynamics</i>				

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

(a)	Mass; Force, inertia, work, power, energy (potential, kinetic and total energy), heat, efficiency;	1	2	1	1
(b)	Momentum, conservation of momentum; Impulse; Gyroscopic principles; Friction: nature and effects, coefficient of friction (rolling resistance).	1	2	2	1
2.2.4	<i>Fluid dynamics</i>				
(a)	Specific gravity and density;	2	2	2	2
(b)	Viscosity, fluid resistance, effects of streamlining; Effects of compressibility on fluids; Static, dynamic and total pressure: Bernoulli's Theorem, venturi.	1	2	1	1
2.3	<i>Thermodynamics</i>				
(a)	Temperature: thermometers and	2	2	2	2

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

	temperature scales: Celsius, Fahrenheit and Kelvin; Heat definition;				
(b)	Heat capacity, specific heat; Heat transfer: convection, radiation and conduction; Volumetric expansion; First and second law of thermodynamics; Gases: ideal gases laws; specific heat at constant volume and constant pressure, work done by expanding gas; Isothermal, adiabatic expansion and compression, engine cycles, constant volume and constant pressure, refrigerators and heat pumps; Latent heats of fusion and evaporation, thermal energy, heat of combustion.	—	2	2	1
2.4	<i>Optics (Light)</i>	—	2	2	—
	Nature of light; speed of light;				

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Laws of reflection and refraction: reflection at plane surfaces, reflection by spherical mirrors, refraction, lenses;				
Fibre optics.				
2.5 <i>Wave Motion and Sound</i>	—	2	2	—
Wave motion: mechanical waves, sinusoidal wave motion, interference phenomena, standing waves;				
Sound: speed of sound, production of sound, intensity, pitch and quality, Doppler effect.				

MODULE ELECTRICAL FUNDAMENTALS

3.

	LEVEL			
	A	B1	[^{F4} B2 B2L]	B3
3.1 <i>Electron Theory</i>	1	1	1	1
Structure and distribution of electrical charges within: atoms, molecules, ions, compounds;				
Molecular structure of conductors,				

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

semiconductors and insulators.				
3.2 <i>Static Electricity and Conduction</i>	1	2	2	1
Static electricity and distribution of electrostatic charges;				
Electrostatic laws of attraction and repulsion;				
Units of charge, Coulomb's Law;				
Conduction of electricity in solids, liquids, gases and a vacuum.				
3.3 <i>Electrical Terminology</i>	1	2	2	1
The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.				
3.4 <i>Generation of Electricity</i>	1	1	1	1
Production of electricity by the following methods: light, heat, friction, pressure,				

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

chemical action, magnetism and motion.				
3.5 <i>DC Sources of Electricity</i>	1	2	2	2
Construction and basic chemical action of: primary cells, secondary cells, lead acid cells, nickel cadmium cells, other alkaline cells;				
Cells connected in series and parallel;				
Internal resistance and its effect on a battery;				
Construction, materials and operation of thermocouples;				
Operation of photo-cells.				
3.6 <i>DC Circuits</i>	—	2	2	1
Ohms Law, Kirchoff's Voltage and Current Laws;				
Calculations using the above laws to find resistance, voltage and current;				
Significance of the internal resistance of a supply.				

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

3.7	Resistance/ Resistor	—			
(a)	Resistance and affecting factors; Specific resistance; Resistor colour code, values and tolerances, preferred values, wattage ratings; Resistors in series and parallel; Calculation of total resistance using series, parallel and series parallel combinations; Operation and use of potentiometers and rheostats; Operation of Wheatstone Bridge;	—	2	2	1
(b)	Positive and negative temperature coefficient conductance; Fixed resistors, stability, tolerance and limitations, methods of construction; Variable resistors, thermistors, voltage dependent resistors;	—	1	1	—

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Construction of potentiometers and rheostats; Construction of Wheatstone Bridge.				
3.8 <i>Power</i>	—	2	2	1
Power, work and energy (kinetic and potential);				
Dissipation of power by a resistor;				
Power formula;				
Calculations involving power, work and energy.				
3.9 <i>Capacitance/ Capacitor</i>	—	2	2	1
Operation and function of a capacitor;				
Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating;				
Capacitor types, construction and function;				
Capacitor colour coding;				
Calculations of capacitance and voltage in series and parallel circuits;				
Exponential charge and discharge of a				

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

capacitor, time constants;				
Testing of capacitors.				
3.10 <i>Magnetism</i>				
(a) Theory of magnetism; Properties of a magnet; Action of a magnet suspended in the Earth's magnetic field; Magnetisation and demagnetisation; Magnetic shielding; Various types of magnetic material; Electromagnets construction and principles of operation; Hand clasp rules to determine: magnetic field around current carrying conductor;	—	2	2	1
(b) Magnetomotive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point,	—	2	2	1

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

eddy currents; Precautions for care and storage of magnets.				
3.11 <i>Inductance/ Inductor</i>		2	2	1
Faraday's Law;				
Action of inducing a voltage in a conductor moving in a magnetic field;				
Induction principles;				
Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns;				
Mutual induction;				
The effect the rate of change of primary current and mutual inductance has on induced voltage;				
Factors affecting mutual inductance: number of turns in coil, physical size of coil, permeability of coil, position of coils with respect to each other;				
Lenz's Law and polarity				

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determining rules;				
Back emf, self induction;				
Saturation point;				
Principle uses of inductors.				
3.12 DC Motor/Generator Theory	—	2	2	1
Basic motor and generator theory;				
Construction and purpose of components in DC generator;				
Operation of, and factors affecting output and direction of current flow in DC generators;				
Operation of, and factors affecting output power, torque, speed and direction of rotation of DC motors;				
Series wound, shunt wound and compound motors;				
Starter Generator construction.				
3.13 AC Theory	1	2	2	1
Sinusoidal waveform: phase, period, frequency, cycle;				

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Instantaneous, average, root mean square, peak, peak to peak current values and calculations of these values, in relation to voltage, current and power;				
Triangular/ Square waves;				
Single/3 phase principles.				
3.14 <i>Resistive (R), Capacitive (C) and Inductive (L) Circuits</i>	—	2	2	1
Phase relationship of voltage and current in L, C and R circuits, parallel, series and series parallel;				
Power dissipation in L, C and R circuits;				
Impedance, phase angle, power factor and current calculations;				
True power, apparent power and reactive power calculations.				
3.15 <i>Transformers</i>	—	2	2	1
Transformer construction				

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principles and operation;				
Transformer losses and methods for overcoming them;				
Transformer action under load and no-load conditions;				
Power transfer, efficiency, polarity markings;				
Calculation of line and phase voltages and currents;				
Calculation of power in a three phase system;				
Primary and Secondary current, voltage, turns ratio, power, efficiency;				
Auto transformers.				
3.16 <i>Filters</i>	—	1	1	—
Operation, application and uses of the following filters: low pass, high pass, band pass, band stop.				
3.17 <i>AC Generators</i>	—	2	2	1
Rotation of loop in a magnetic field and waveform produced;				

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Operation and construction of revolving armature and revolving field type AC generators;				
Single phase, two phase and three phase alternators;				
Three phase star and delta connections advantages and uses;				
Permanent Magnet Generators.				
3.18 AC Motors	—	2	2	1
Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and polyphase;				
Methods of speed control and direction of rotation;				
Methods of producing a rotating field: capacitor, inductor, shaded or split pole.				

MODULE ELECTRONIC FUNDAMENTALS

4.

	LEVEL			
	A	B1	[^{F4} B2 B2L]	B3

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

4.1	<i>Semiconductors</i>				
4.1.1	<i>Diodes</i>				
(a)	Diode symbols; Diode characteristics and properties; Diodes in series and parallel; Main characteristics and use of silicon controlled rectifiers (thyristors), light emitting diode, photo conductive diode, varistor, rectifier diodes; Functional testing of diodes.	—	2	2	1
(b)	Materials, electron configuration, electrical properties; P and N type materials: effects of impurities on conduction, majority and minority characters; PN junction in a semiconductor, development of a potential across a PN junction in unbiased, forward biased and reverse biased conditions; Diode parameters: peak inverse voltage, maximum forward current,	—	—	2	—

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<p>temperature, frequency, leakage current, power dissipation; Operation and function of diodes in the following circuits: clippers, clampers, full and half wave rectifiers, bridge rectifiers, voltage doublers and triplers; Detailed operation and characteristics of the following devices: silicon controlled rectifier (thyristor), light emitting diode, Schottky diode, photo conductive diode, varactor diode, varistor, rectifier diodes, Zener diode.</p>				
<p>4.1.2 <i>Transistors</i></p>				
<p>(a) Transistor symbols; Component description and orientation; Transistor characteristics and properties.</p>	—	1	2	1
<p>(b) Construction and operation of PNP and NPN transistors;</p>	—	—	2	—

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	Base, collector and emitter configurations; Testing of transistors; Basic appreciation of other transistor types and their uses; Application of transistors: classes of amplifier (A, B, C); Simple circuits including: bias, decoupling, feedback and stabilisation; Multistage circuit principles: cascades, push-pull, oscillators, multivibrators, flip-flop circuits.				
4.1.3	<i>Integrated Circuits</i>				
(a)	Description and operation of logic circuits and linear circuits/operational amplifiers;	—	1	—	1
(b)	Description and operation of logic circuits and linear circuits; Introduction to operation	—	—	2	—

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<p>and function of an operational amplifier used as: integrator, differentiator, voltage follower, comparator; Operation and amplifier stages connecting methods: resistive capacitive, inductive (transformer), inductive resistive (IR), direct; Advantages and disadvantages of positive and negative feedback.</p>				
<p>4.2 <i>Printed Circuit Boards</i></p>	—	1	2	—
<p>Description and use of printed circuit boards.</p>				
<p>4.3 <i>Servomechanisms</i></p>				
<p>(a) Understanding of the following terms: Open and closed loop systems, feedback, follow up, analogue transducers; Principles of operation and use of the following synchro system</p>	—	1	—	—

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<p>components/ features: resolvers, differential, control and torque, transformers, inductance and capacitance transmitters;</p>				
<p>(b) Understanding of the following terms: Open and closed loop, follow up, servomechanism, analogue, transducer, null, damping, feedback, deadband; Construction operation and use of the following synchro system components: resolvers, differential, control and torque, E and I transformers, inductance transmitters, capacitance transmitters, synchronous transmitters; Servomechanism defects, reversal of synchro leads, hunting.</p>	<p>—</p>	<p>—</p>	<p>2</p>	<p>—</p>

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		LEVEL				
		A	B1-1B1-3	B1-2B1-4	[^{F4} B2 B2L]	B3
5.1	<i>Electronic Instrument Systems</i>	1	2	2	3	1
	Typical systems arrangements and cockpit layout of electronic instrument systems.					
5.2	<i>Numbering Systems</i>	—	1	—	2	—
	Numbering systems: binary, octal and hexadecimal;					
	Demonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa.					
5.3	<i>Data Conversion</i>	—	1	—	2	—
	Analogue Data, Digital Data;					
	Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types.					

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5.4	<i>Data Buses</i>	—	2	—	2	—
	Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications.					
	Aircraft Network/Ethernet.					
5.5	<i>Logic Circuits</i>					
(a)	Identification of common logic gate symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams.	—	2	—	2	[^{F4} —]
(b)	Interpretation of logic diagrams.	—	—	—	2	—
5.6	<i>Basic Computer Structure</i>					
(a)	Computer terminology (including bit, byte, software,	1	2	—	—	—

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<p>hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); Computer technology (as applied in aircraft systems).</p>					
<p>(b) Computer related terminology; Operation, layout and interface of the major components in a micro computer including their associated bus systems; Information contained in single and multiaddress instruction words; Memory associated terms; Operation of typical memory devices; Operation, advantages and disadvantages of the various data storage systems.</p>	<p>—</p>	<p>—</p>	<p>—</p>	<p>2</p>	<p>—</p>

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5.7	<i>Microprocessors</i>	—	—	2	—
	Functions performed and overall operation of a microprocessor;				
	Basic operation of each of the following microprocessor elements: control and processing unit, clock, register, arithmetic logic unit.				
5.8	<i>Integrated Circuits</i>	—	—	2	—
	Operation and use of encoders and decoders;				
	Function of encoder types;				
	Uses of medium, large and very large scale integration.				
5.9	<i>Multiplexing</i>	—	—	2	—
	Operation, application and identification in logic diagrams of multiplexers and demultiplexers.				
5.10	<i>Fibre Optics</i>	1	1	2	—

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Advantages and disadvantages of fibre optic data transmission over electrical wire propagation;					
Fibre optic data bus;					
Fibre optic related terms;					
Terminations;					
Couplers, control terminals, remote terminals;					
Application of fibre optics in aircraft systems.					
5.11 <i>Electronic Displays</i>	—	2	1	2	[^{F4} —]
Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.					
5.12 <i>Electrostatic Sensitive Devices</i>	1	2	2	2	[^{F4} —]
Special handling of components					

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sensitive to electrostatic discharges;					
Awareness of risks and possible damage, component and personnel anti-static protection devices.					
5.13 <i>Software Management Control</i>	—	2	1	2	[^{F4} —]
Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes.					
5.14 <i>Electromagnetic Environment</i>	—	2	2	2	[^{F4} —]
Influence of the following phenomena on maintenance practices for electronic system: EMC- Electromagnetic Compatibility EMI- Electromagnetic Interference HIRF- High Intensity Radiated Field					

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	Lightning/ lightning protection.					
5.15	— <i>Typical Electronic/ Digital Aircraft Systems</i>	2	2	2		[^{F4} —]
	General arrangement of typical electronic/ digital aircraft systems and associated BITE (Built In Test Equipment) such as: (a) For B1 and B2 only:					
	ACARS- ARINC Communication and Addressing and Reporting System EICAS- Engine Indication and Crew Alerting System FBW- Fly- by- Wire FMS- Flight Management System IRS- Inertial Reference System;					

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(b) For B1, B2 and B3:	ECAM- Electronic Centralised Aircraft Monitoring EFIS- Electronic Flight Instrument System GPS- Global Positioning System TCAS- Traffic Alert Collision Avoidance System Integrated Modular Avionics Cabin Systems Information Systems.				
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MODUL MATERIALS AND HARDWARE

6.

		LEVEL			
		A	B1	[^{F4} B2 B2L]	B3
6.1	<i>Aircraft Materials — Ferrous</i>				
(a)	Characteristics, properties and identification of common alloy steels	1	2	1	2

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	used in aircraft; Heat treatment and application of alloy steels.				
(b)	Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.	—	1	1	1
6.2	<i>Aircraft Materials</i> <i>Non-Ferrous</i>	—			
(a)	Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials;	1	2	1	2
(b)	Testing of non-ferrous material for hardness, tensile strength, fatigue strength and	—	1	1	1

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

	impact resistance.				
6.3	<i>Aircraft Materials — Composite and Non-Metallic</i>				
6.3.1	<i>Composite and non-metallic other than wood and fabric</i>				
(a)	Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents;	1	2	2	2
(b)	The detection of defects/deterioration in composite and non-metallic material; Repair of composite and	1	2	—	2

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

non-metallic material.				
6.3.2 <i>Wooden structures</i>	1	2	—	2
Construction methods of wooden airframe structures;				
Characteristics, properties and types of wood and glue used in aeroplanes;				
Preservation and maintenance of wooden structure;				
Types of defects in wood material and wooden structures;				
The detection of defects in wooden structure;				
Repair of wooden structure.				
6.3.3 <i>Fabric covering</i>	1	2	—	2
Characteristics, properties and types of fabrics used in aeroplanes;				
Inspections methods for fabric;				
Types of defects in fabric;				
Repair of fabric covering.				
6.4 <i>Corrosion</i>				

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

(a)	Chemical fundamentals; Formation by, galvanic action process, microbiological, stress;	1	1	1	1
(b)	Types of corrosion and their identification; Causes of corrosion; Material types, susceptibility to corrosion.	2	3	2	2
6.5	<i>Fasteners</i>				
6.5.1	<i>Screw threads</i>	2	2	2	2
	Screw nomenclature;				
	Thread forms, dimensions and tolerances for standard threads used in aircraft;				
	Measuring screw threads.				
6.5.2	<i>Bolts, studs and screws</i>	2	2	2	2
	Bolt types: specification, identification and marking of aircraft bolts, international standards;				
	Nuts: self locking, anchor, standard types;				

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Machine screws: aircraft specifications;				
Studs: types and uses, insertion and removal;				
Self tapping screws, dowels.				
6.5.3 <i>Locking devices</i>	2	2	2	2
Tab and spring washers, locking plates, split pins, pal-nuts, wire locking, quick release fasteners, keys, circlips, cotter pins.				
6.5.4 <i>Aircraft rivets</i>	1	2	1	2
Types of solid and blind rivets: specifications and identification, heat treatment.				
6.6 <i>Pipes and Unions</i>				
(a) Identification of, and types of rigid and flexible pipes and their connectors used in aircraft;	2	2	2	2
(b) Standard unions for	2	2	1	2

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	aircraft hydraulic, fuel, oil, pneumatic and air system pipes.				
6.7	<i>Springs</i>	—	2	1	1
	Types of springs, materials, characteristics and applications.				
6.8	<i>Bearings</i>	1	2	2	1
	Purpose of bearings, loads, material, construction;				
	Types of bearings and their application.				
6.9	<i>Transmissions</i>	1	2	2	1
	Gear types and their application;				
	Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns;				
	Belts and pulleys, chains and sprockets.				
6.10	<i>Control Cables</i>	1	2	1	2
	Types of cables;				
	End fittings, turnbuckles and compensation devices;				

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Pulleys and cable system components;				
Bowden cables;				
Aircraft flexible control systems.				
6.11 <i>Electrical Cables and Connectors</i>	1	2	2	2
Cable types, construction and characteristics;				
High tension and co-axial cables;				
Crimping;				
Connector types, pins, plugs, sockets, insulators, current and voltage rating, coupling, identification codes.				

MODULE MAINTENANCE PRACTICES

7A.

Note: This module does not apply to category B3. Relevant subject matters for category B3 are defined in module 7B.

	LEVEL		
	A	B1	[^{F4} B2 B2L]
7.1 <i>Safety Precautions-Aircraft and Workshop</i>	3	3	3
Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals.			

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Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.			
7.2 <i>Workshop Practices</i>	3	3	3
Care of tools, control of tools, use of workshop materials;			
Dimensions, allowances and tolerances, standards of workmanship;			
Calibration of tools and equipment, calibration standards.			
7.3 <i>Tools</i>	3	3	3
Common hand tool types;			
Common power tool types;			
Operation and use of precision measuring tools;			
Lubrication equipment and methods.			
Operation, function and use of electrical general test equipment.			
7.4 <i>Avionic General Test Equipment</i>	—	2	3
Operation, function and use of avionic general test equipment.			

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7.5	<i>Engineering Drawings, Diagrams and Standards</i>	1	2	2
	Drawing types and diagrams, their symbols, dimensions, tolerances and projections;			
	Identifying title block information;			
	Microfilm, microfiche and computerised presentations;			
	Specification 100 of the Air Transport Association (ATA) of America;			
	Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL;			
	Wiring diagrams and schematic diagrams.			
7.6	<i>Fits and Clearances</i>	1	2	1
	Drill sizes for bolt holes, classes of fits;			
	Common system of fits and clearances;			
	Schedule of fits and clearances for aircraft and engines;			
	Limits for bow, twist and wear;			
	Standard methods for checking shafts, bearings and other parts.			
7.7	<i>Electrical Wiring</i>	1	3	3

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

<i>Interconnection System (EWIS)</i>			
Continuity, insulation and bonding techniques and testing;			
Use of crimp tools: hand and hydraulic operated;			
Testing of crimp joints;			
Connector pin removal and insertion;			
Co-axial cables: testing and installation precautions;			
Identification of wire types, their inspection criteria and damage tolerance.			
Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding;			
EWIS installations, inspection, repair, maintenance and cleanliness standards.			
7.8 <i>Riveting</i>	1	2	—
Riveted joints, rivet spacing and pitch;			
Tools used for riveting and dimpling;			
Inspection of riveted joints.			

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

7.9	<i>Pipes and Hoses</i>	1	2	—
	Bending and belling/ flaring aircraft pipes;			
	Inspection and testing of aircraft pipes and hoses;			
	Installation and clamping of pipes.			
7.10	<i>Springs</i>	1	2	—
	Inspection and testing of springs.			
7.11	<i>Bearings</i>	1	2	—
	Testing, cleaning and inspection of bearings;			
	Lubrication requirements of bearings;			
	Defects in bearings and their causes.			
7.12	<i>Transmissions</i>	1	2	—
	Inspection of gears, backlash;			
	Inspection of belts and pulleys, chains and sprockets;			
	Inspection of screw jacks, lever devices, push-pull rod systems.			
7.13	<i>Control Cables</i>	1	2	—
	Swaging of end fittings;			
	Inspection and testing of control cables;			
	Bowden cables; aircraft flexible control systems.			

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

7.14	<i>Material handling</i>			
7.14.1	<i>Sheet Metal</i>	—	2	—
	Marking out and calculation of bend allowance;			
	Sheet metal working, including bending and forming;			
	Inspection of sheet metal work.			
7.14.2	<i>Composite and non-metallic</i>	—	2	—
	Bonding practices;			
	Environmental conditions;			
	Inspection methods.			
7.15	<i>Welding, Brazing, Soldering and Bonding</i>			
(a)	Soldering methods; inspection of soldered joints.	—	2	2
(b)	Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.	—	2	—
7.16	<i>Aircraft Weight and Balance</i>			

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

(a)	Centre of Gravity/ Balance limits calculation: use of relevant documents;	—	2	2
(b)	Preparation of aircraft for weighing; Aircraft weighing.	—	2	—
7.17	<i>Aircraft Handling and Storage</i>	2	2	2
	Aircraft taxiing/ towing and associated safety precautions;			
	Aircraft jacking, chocking, securing and associated safety precautions;			
	Aircraft storage methods;			
	Refuelling/defuelling procedures;			
	De-icing/anti-icing procedures;			
	Electrical, hydraulic and pneumatic ground supplies.			
	Effects of environmental conditions on aircraft handling and operation.			
7.18	<i>Disassembly, Inspection, Repair and Assembly Techniques</i>			

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

(a)	Types of defects and visual inspection techniques; Corrosion removal, assessment and re-protection;	2	3	3
(b)	General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion control programmes;	—	2	—
(c)	Non-destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods;	—	2	1
(d)	Disassembly and re-assembly techniques;	2	2	2
(e)	Trouble shooting techniques.	—	2	2
7.19	<i>Abnormal Events</i>			
(a)	Inspections following lightning strikes	2	2	2

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	and HIRF penetration;			
(b)	Inspections following abnormal events such as heavy landings and flight through turbulence.	2	2	—
7.20	<i>Maintenance Procedures</i>	1	2	2
	Maintenance planning;			
	Modification procedures;			
	Stores procedures;			
	Certification/release procedures;			
	Interface with aircraft operation;			
	Maintenance Inspection/Quality Control/Quality Assurance;			
	Additional maintenance procedures;			
	Control of life limited components.			

MODULE MAINTENANCE PRACTICES

7B.

Note: The scope of this module shall reflect the technology of aeroplanes relevant to the B3 category.

		LEVEL
		B3
7.1	<i>Safety Precautions-Aircraft and Workshop</i>	3
	Aspects of safe working practices including precautions to take when working with	

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electricity, gases especially oxygen, oils and chemicals.	
Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.	
7.2 <i>Workshop Practices</i>	3
Care of tools, control of tools, use of workshop materials;	
Dimensions, allowances and tolerances, standards of workmanship;	
Calibration of tools and equipment, calibration standards.	
7.3 <i>Tools</i>	3
Common hand tool types;	
Common power tool types;	
Operation and use of precision measuring tools;	
Lubrication equipment and methods;	
Operation, function and use of electrical general test equipment.	
7.4 <i>Avionic General Test Equipment</i>	[^{F4} 1]
Operation, function and use of avionic general test equipment.	
7.5 <i>Engineering Drawings, Diagrams and Standards</i>	2
Drawing types and diagrams, their symbols, dimensions, tolerances and projections;	
Identifying title block information;	
Microfilm, microfiche and computerised presentations;	
Specification 100 of the Air Transport Association (ATA) of America;	
Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL;	
Wiring diagrams and schematic diagrams.	
7.6 <i>Fits and Clearances</i>	2

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Drill sizes for bolt holes, classes of fits;	
Common system of fits and clearances;	
Schedule of fits and clearances for aircraft and engines;	
Limits for bow, twist and wear;	
Standard methods for checking shafts, bearings and other parts.	
7.7 Electrical Cables and Connectors	2
Continuity, insulation and bonding techniques and testing;	
Use of crimp tools: hand and hydraulic operated;	
Testing of crimp joints;	
Connector pin removal and insertion;	
Co-axial cables: testing and installation precautions;	
Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding.	
7.8 Riveting	2
Riveted joints, rivet spacing and pitch;	
Tools used for riveting and dimpling;	
Inspection of riveted joints.	
7.9 Pipes and Hoses	2
Bending and belling/flaring aircraft pipes;	
Inspection and testing of aircraft pipes and hoses;	
Installation and clamping of pipes.	
7.10 Springs	[F42]
Inspection and testing of springs.	
7.11 Bearings	2
Testing, cleaning and inspection of bearings;	
Lubrication requirements of bearings;	
Defects in bearings and their causes.	

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7.12	<i>Transmissions</i>	2
	Inspection of gears, backlash;	
	Inspection of belts and pulleys, chains and sprockets;	
	Inspection of screw jacks, lever devices, push-pull rod systems.	
7.13	<i>Control Cables</i>	2
	Swaging of end fittings;	
	Inspection and testing of control cables;	
	Bowden cables; aircraft flexible control systems.	
7.14	<i>Material handling</i>	
7.14.1	<i>Sheet Metal</i>	2
	Marking out and calculation of bend allowance;	
	Sheet metal working, including bending and forming;	
	Inspection of sheet metal work.	
7.14.2	<i>Composite and non-metallic</i>	2
	Bonding practices;	
	Environmental conditions;	
	Inspection methods.	
7.15	<i>Welding, Brazing, Soldering and Bonding</i>	
(a)	Soldering methods; inspection of soldered joints;	2
(b)	Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.	2
7.16	<i>Aircraft Weight and Balance</i>	
(a)	Centre of Gravity/Balance limits calculation: use of relevant documents;	2

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(b) Preparation of aircraft for weighing; Aircraft weighing.	2
7.17 <i>Aircraft Handling and Storage</i>	2
Aircraft taxiing/towing and associated safety precautions;	
Aircraft jacking, chocking, securing and associated safety precautions;	
Aircraft storage methods;	
Refuelling/defuelling procedures;	
De-icing/anti-icing procedures;	
Electrical, hydraulic and pneumatic ground supplies;	
Effects of environmental conditions on aircraft handling and operation.	
7.18 <i>Disassembly, Inspection, Repair and Assembly Techniques</i>	
(a) Types of defects and visual inspection techniques; Corrosion removal, assessment and re-protection;	3
(b) General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion control programmes;	2
(c) Non-destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods;	2
(d) Disassembly and re-assembly techniques;	2
(e) Trouble shooting techniques.	2
7.19 <i>Abnormal Events</i>	
(a) Inspections following lightning strikes and HIRF penetration.	2

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(b)	Inspections following abnormal events such as heavy landings and flight through turbulence.	2
7.20	<i>Maintenance Procedures</i>	2
	Maintenance planning;	
	Modification procedures;	
	Stores procedures;	
	Certification/release procedures;	
	Interface with aircraft operation;	
	Maintenance Inspection/Quality Control/ Quality Assurance;	
	Additional maintenance procedures;	
	Control of life limited components.	

MODULE BASIC AERODYNAMICS

8.

	LEVEL			
	A	B1	[^{F4} B2 B2L]	B3
8.1 <i>Physics of the Atmosphere</i>	1	2	2	1
International Standard Atmosphere (ISA), application to aerodynamics.				
8.2 <i>Aerodynamics</i>	1	2	2	1
Airflow around a body;				
Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation;				

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The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, centre of pressure, angle of attack, wash in and wash out, fineness ratio, wing shape and aspect ratio;				
Thrust, Weight, Aerodynamic Resultant;				
Generation of Lift and Drag: Angle of Attack, Lift coefficient, Drag coefficient, polar curve, stall;				
Aerofoil contamination including ice, snow, frost.				
8.3 <i>Theory of Flight</i>	1	2	2	1
Relationship between lift, weight, thrust and drag;				
Glide ratio;				
Steady state flights, performance;				
Theory of the turn;				
Influence of load factor: stall, flight envelope and structural limitations;				

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Lift augmentation.				
8.4 <i>Flight Stability and Dynamics</i>	1	2	2	1
Longitudinal, lateral and directional stability (active and passive).				

MODULE HUMAN FACTORS

9A.

Note: This module does not apply to category B3. Relevant subject matters for category B3 are defined in module 9B.

	LEVEL		
	A	B1	[^{F4} B2 B2L]
9.1 <i>General</i>	1	2	2
The need to take human factors into account;			
Incidents attributable to human factors/ human error;			
'Murphy's' law.			
9.2 <i>Human Performance and Limitations</i>	1	2	2
Vision;			
Hearing;			
Information processing;			
Attention and perception;			
Memory;			
Claustrophobia and physical access.			

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9.3	<i>Social Psychology</i>	1	1	1
	Responsibility: individual and group;			
	Motivation and demotivation;			
	Peer pressure;			
	'Culture' issues;			
	Team working;			
	Management, supervision and leadership.			
9.4	<i>Factors Affecting Performance</i>	2	2	2
	Fitness/health;			
	Stress: domestic and work related;			
	Time pressure and deadlines;			
	Workload: overload and underload;			
	Sleep and fatigue, shiftwork;			
	Alcohol, medication, drug abuse.			
9.5	<i>Physical Environment</i>	1	1	1
	Noise and fumes;			
	Illumination;			
	Climate and temperature;			
	Motion and vibration;			
	Working environment.			
9.6	<i>Tasks</i>	1	1	1
	Physical work;			
	Repetitive tasks;			

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Visual inspection;			
Complex systems.			
9.7 <i>Communication</i>	2	2	2
Within and between teams;			
Work logging and recording;			
Keeping up to date, currency;			
Dissemination of information.			
9.8 <i>Human Error</i>	1	2	2
Error models and theories;			
Types of error in maintenance tasks;			
Implications of errors (i.e. accidents);			
Avoiding and managing errors.			
9.9 <i>Hazards in the Workplace</i>	1	2	2
Recognising and avoiding hazards;			
Dealing with emergencies.			

MODULE HUMAN FACTORS

9B.

Note: The scope of this module shall reflect the less demanding environment of maintenance for B3 licence holders.

	LEVEL
	B3
9.1 <i>General</i>	2
The need to take human factors into account;	

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Incidents attributable to human factors/ human error;	
‘Murphy’s’ law.	
9.2 <i>Human Performance and Limitations</i>	2
Vision;	
Hearing;	
Information processing;	
Attention and perception;	
Memory;	
Claustrophobia and physical access.	
9.3 <i>Social Psychology</i>	1
Responsibility: individual and group;	
Motivation and de-motivation;	
Peer pressure;	
‘Culture’ issues;	
Team working;	
Management, supervision and leadership.	
9.4 <i>Factors Affecting Performance</i>	2
Fitness/health;	
Stress: domestic and work related;	
Time pressure and deadlines;	
Workload: overload and underload;	
Sleep and fatigue, shiftwork;	
Alcohol, medication, drug abuse.	
9.5 <i>Physical Environment</i>	1
Noise and fumes;	
Illumination;	
Climate and temperature;	
Motion and vibration;	
Working environment.	
9.6 <i>Tasks</i>	1
Physical work;	

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Repetitive tasks;	
Visual inspection;	
Complex systems.	
9.7 <i>Communication</i>	2
Within and between teams;	
Work logging and recording;	
Keeping up to date, currency;	
Dissemination of information.	
9.8 <i>Human Error</i>	2
Error models and theories;	
Types of error in maintenance tasks;	
Implications of errors (i.e. accidents);	
Avoiding and managing errors.	
9.9 <i>Hazards in the Workplace</i>	2
Recognising and avoiding hazards;	
Dealing with emergencies.	

^{F65}MODULATIVE LEGISLATION

10.

		LEVEL			
		A	B1	B2 B2L	B3
10.1	<i>Regulatory Framework</i> Role of the International Civil Aviation Organisation; ^{F66} ... [^{F67} Role of the CAA]; [^{F68} Role of the Secretary of State];		1	1	1

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	Regulations (EU) 2018/1139, Regulation (EU) No 748/2012, Regulation (EU) No 1321/2014 and Regulation (EU) No 376/2014; Relation between the various Annexes (Parts) of Regulation (EU) No 748/2012, Regulation (EU) No 1321/2014 and Regulation (EU) No 965/2012			
10.2	<i>Certifying Staff – Maintenance</i> Detailed understanding of Part-66.	2	2	2
10.3	<i>Approved Maintenance Organisations</i> Detailed understanding of Part-145 and Part-M	2	2	2

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	Subpart F.				
10.4	<i>Air operations</i> General understanding of Regulation (EU) No 965/2012. Air Operators Certificates; Operator's responsibilities, in particular regarding continuing airworthiness and maintenance; Aircraft Maintenance Programme; MEL// CDL; Documents to be carried on board; Aircraft placarding (markings).	1	1	1	1
10.5	<i>Certification of aircraft, parts and appliances</i>				
(a)	General General understanding of Part 21 and [F69CAA] certification specifications CS-23,	—	1	1	1

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	25, 27, 29.			
(b)	Documents— Certificate of Airworthiness; restricted certificates of airworthiness and permit to fly; Certificate of Registration; Noise Certificate; Weight Schedule; Radio Station Licence and Approval.	2	2	2
10.6	<i>Continuing airworthiness</i> Detailed understanding of Part 21 provisions related to continuing airworthiness. Detailed understanding of Part-M.	2	2	2
10.7	<i>Applicable National and International Requirements for (if not superseded by EU requirements).</i>			

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(a)	Maintenance Programmes, Maintenance checks and inspections; Airworthiness Directives; Service Bulletins, manufacturers service information; Modifications and repairs; Maintenance documentation: maintenance manuals, structural repair manual, illustrated parts catalogue, etc.; Only for A to B2 licences: Master Minimum Equipment Lists, Minimum Equipment List, Dispatch Deviation Lists;	2	2	2
(b)	Continuing airworthiness; Minimum equipment requirements — Test flights; Only for B1 and B2 licences;	1	1	1]

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ETOPS, maintenance and dispatch requirements; All Weather Operations, Category 2/3 operations.			
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Textual Amendments

- F66** Words in Annex 3 Appendix 1, point 2, Module 10 omitted (31.12.2020) by virtue of The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **278(2)(a)(i)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F67** Words in Annex 3 Appendix 1, point 2, Module 10 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **278(2)(a)(ii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F68** Words in Annex 3 Appendix 1, point 2, Module 10 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **278(2)(a)(iii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F69** Word in Annex 3 Appendix 1, point 2, Module 10 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **278(2)(b)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

Textual Amendments

- F65** Substituted by Commission Implementing Regulation (EU) 2020/270 of 25 February 2020 amending Regulation (EU) No 1321/2014 as regards transitional measures for organisations involved in the continuing airworthiness for general aviation and continuing airworthiness management and correcting that Regulation (Text with EEA relevance).

MODULE TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS 11A.

	LEVEL	
	A1	B1.1
11.1 <i>Theory of Flight</i>		
11.1.1. <i>Aeroplane Aerodynamics and Flight Controls</i>	1	2
Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators,	—	—

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) [View outstanding changes](#)

—	stabilators, variable incidence stabilisers and canards, yaw control, rudder limiters;		
	Control using elevons, ruddervators;		
	High lift devices, slots, slats, flaps, flaperons;		
	Drag inducing devices, spoilers, lift dumpers, speed brakes;		
	Effects of wing fences, saw tooth leading edges;		
	Boundary layer control using, vortex generators, stall wedges or leading edge devices;		
	Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels.		
11.1.2.	<i>High Speed Flight</i>	1	2
	Speed of sound, subsonic flight, transonic flight, supersonic flight;		
	Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule;		
	Factors affecting airflow in engine intakes of high speed aircraft;		
	Effects of sweepback on critical Mach number.		
11.2	<i>Airframe Structures — General Concepts</i>		
(a)	Airworthiness requirements for structural strength;	2	2

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

<p>Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; Aircraft bonding.</p>		
<p>(b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.</p>	1	2
<p>11.3 <i>Airframe Structures — Aeroplanes</i></p>		
<p>11.3.1 <i>Fuselage (ATA 52/53/56)</i></p>	1	2

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Construction and pressurisation sealing;		
Wing, stabiliser, pylon and undercarriage attachments;		
Seat installation and cargo loading system;		
Doors and emergency exits: construction, mechanisms, operation and safety devices;		
Windows and windscreen construction and mechanisms.		
11.3.2 <i>Wings (ATA 57)</i>	1	2
Construction;		
Fuel storage;		
Landing gear, pylon, control surface and high lift/drag attachments.		
11.3.3 <i>Stabilisers (ATA 55)</i>	1	2
Construction;		
Control surface attachment.		
11.3.4 <i>Flight Control Surfaces (ATA 55/57)</i>	1	2
Construction and attachment;		
Balancing — mass and aerodynamic.		
11.3.5 <i>Nacelles/Pylons (ATA 54)</i>	1	2
Nacelles/Pylons: — Construction, — Firewalls, — Engine mounts.	—	—
11.4 <i>Air Conditioning and Cabin Pressurisation (ATA 21)</i>		
11.4.1 <i>Air supply</i>	1	2

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Sources of air supply including engine bleed, APU and ground cart.		
11.4.2 <i>Air Conditioning</i>	1	3
Air conditioning systems;		
Air cycle and vapour cycle machines;		
Distribution systems;		
Flow, temperature and humidity control system.		
11.4.3 <i>Pressurisation</i>	1	3
Pressurisation systems;		
Control and indication including control and safety valves;		
Cabin pressure controllers.		
11.4.4 <i>Safety and warning devices</i>	1	3
Protection and warning devices.		
11.5 <i>Instruments/Avionic Systems</i>		
11.5.1 <i>Instrument Systems (ATA 31)</i>	1	2
Pitot static: altimeter, air speed indicator, vertical speed indicator;		
Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator;		
Compasses: direct reading, remote reading;		
Angle of attack indication, stall warning systems;		
Glass cockpit;		

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Other aircraft system indication.		
11.5.2 <i>Avionic Systems</i>	1	1
Fundamentals of system layouts and operation of: — Auto Flight (ATA 22), — Communications (ATA 23), — Navigation Systems (ATA 34).	—	—
11.6 <i>Electrical Power (ATA 24)</i>	1	3
Batteries Installation and Operation;		
DC power generation;		
AC power generation;		
Emergency power generation;		
Voltage regulation;		
Power distribution;		
Inverters, transformers, rectifiers;		
Circuit protection;		
External/Ground power.		
11.7 <i>Equipment and Furnishings (ATA 25)</i>		
(a) Emergency equipment requirements; Seats, harnesses and belts.	2	2
(b) Cabin lay-out; Equipment lay-out; Cabin Furnishing installation; Cabin entertainment equipment; Galley installation; Cargo handling and retention equipment; Airstairs.	1	1

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11.8	<i>Fire Protection (ATA 26)</i>	1	3
(a)	Fire and smoke detection and warning systems; Fire extinguishing systems; System tests;		
(b)	Portable fire extinguisher.	1	[F42]
11.9	<i>Flight Controls (ATA 27)</i>	1	3
	Primary controls: aileron, elevator, rudder, spoiler;		
	Trim control;		
	Active load control;		
	High lift devices;		
	Lift dump, speed brakes;		
	System operation: manual, hydraulic, pneumatic, electrical, fly-by-wire;		
	Artificial feel, Yaw damper, Mach trim, rudder limiter, gust lock systems;		
	Balancing and rigging;		
	Stall protection/warning system.		
11.10	<i>Fuel Systems (ATA 28)</i>	1	3
	System lay-out;		
	Fuel tanks;		
	Supply systems;		
	Dumping, venting and draining;		
	Cross-feed and transfer;		
	Indications and warnings;		
	Refuelling and defuelling;		
	Longitudinal balance fuel systems.		

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11.11	<i>Hydraulic Power (ATA 29)</i>	1	3
	System lay-out;		
	Hydraulic fluids;		
	Hydraulic reservoirs and accumulators;		
	Pressure generation: electric, mechanical, pneumatic;		
	Emergency pressure generation;		
	Filters;		
	Pressure Control;		
	Power distribution;		
	Indication and warning systems;		
	Interface with other systems.		
11.12	<i>Ice and Rain Protection (ATA 30)</i>	1	3
	Ice formation, classification and detection;		
	Anti-icing systems: electrical, hot air and chemical;		
	De-icing systems: electrical, hot air, pneumatic and chemical;		
	Rain repellent;		
	Probe and drain heating;		
	Wiper systems.		
11.13	<i>Landing Gear (ATA 32)</i>	2	3
	Construction, shock absorbing;		
	Extension and retraction systems: normal and emergency;		
	Indications and warning;		
	Wheels, brakes, antiskid and autobraking;		

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Tyres;		
Steering;		
Air-ground sensing.		
11.14 <i>Lights (ATA 33)</i>	2	3
External: navigation, anti collision, landing, taxiing, ice;		
Internal: cabin, cockpit, cargo;		
Emergency.		
11.15 <i>Oxygen (ATA 35)</i>	1	3
System lay-out: cockpit, cabin;		
Sources, storage, charging and distribution;		
Supply regulation;		
Indications and warnings.		
[^{F4} 11.16 <i>Pneumatic/Vacuum (ATA 36)</i>]	1	3
[^{F4} System lay-out;]		
[^{F4} Sources: engine/APU (Auxiliary Power Unit), compressors, reservoirs, ground supply;]		
[^{F4} Pressure and vacuum pumps;]		
[^{F4} Pressure control;]		
[^{F4} Distribution;]		
[^{F4} Indications and warnings;]		
[^{F4} Interfaces with other systems.]		
11.17 <i>Water/Waste (ATA 38)</i>	2	3
Water system lay-out, supply, distribution, servicing and draining;		

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Toilet system lay-out, flushing and servicing;		
Corrosion aspects.		
11.18 <i>On Board Maintenance Systems (ATA 45)</i>	1	2
Central maintenance computers;		
Data loading system;		
Electronic library system;		
Printing;		
Structure monitoring (damage tolerance monitoring).		
11.19 <i>Integrated Modular Avionics (ATA42)</i>	1	2
Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc.		
Core System; Network Components.		
[^{F4} 11.20 <i>Cabin Systems (ATA44)</i>]	1	2

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

<p>[^{F4}The units and components which furnish a means of entertaining the passengers and providing communication within the aircraft (Cabin Intercommunication Data System (CIDS)) and between the aircraft cabin and ground stations (Cabin Network Service (CNS)). They include voice, data, music and video transmissions.]</p>		
<p>[^{F4}CIDS provides an interface between cockpit/ cabin crew and cabin systems. These systems support data exchange between the different related Line Replaceable Units (LRUs) and they are typically operated via Flight Attendant Panels (FAPs).]</p>		
<p>[^{F4}CNS typically consists of a server, interfacing with, among others, the following systems:</p> <ul style="list-style-type: none"> — Data/Radio Communication; — Cabin Core System (CCS); — In-flight Entertainment System (IFES); — External Communication System (ECS); — Cabin Mass Memory System (CMMS); — Cabin Monitoring System (CMS); — Miscellaneous Cabin Systems (MCSs).] 	—	—
<p>[^{F4}CNS may host functions such as:</p> <ul style="list-style-type: none"> — access to pre-departure/departure reports; 	—	—

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

—	e-mail/intranet/ internet access; passenger database.]		
	Cabin Core System;		
	In-flight Entertainment System;		
	External Communication System;		
	Cabin Mass Memory System;		
	Cabin Monitoring System;		
	Miscellaneous Cabin System.		
11.21	<i>Information Systems (ATA46)</i>	1	2
	The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display.		
	Typical examples include Air Traffic and Information Management Systems and Network Server Systems		
	Aircraft General Information System;		
	Flight Deck Information System;		
	Maintenance Information System;		
	Passenger Cabin Information System;		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Miscellaneous Information System.		
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MODULE 11B. B11.1.1. AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Note 1: This module does not apply to category B3. Relevant subject matters for category B3 are defined in module 11C.

Note 2: The scope of this Module shall reflect the technology of aeroplanes pertinent to the A2 and B1.2 subcategory.

	LEVEL	
	A2	B1.2
11.1 <i>Theory of Flight</i>		
11.1.1. <i>Aeroplane Aerodynamics and Flight Controls</i>	1	2
Operation and effect of:	—	—
— roll control: ailerons and spoilers,		
— pitch control: elevators, stabilators, variable incidence stabilisers and canards,		
— yaw control, rudder limiters;		
Control using elevons, ruddervators;		
High lift devices, slots, slats, flaps, flaperons;		
Drag inducing devices, spoilers, lift dumpers, speed brakes;		
Effects of wing fences, saw tooth leading edges;		
Boundary layer control using, vortex generators, stall wedges or leading edge devices;		
Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

balance, control surface bias, aerodynamic balance panels.		
11.1.2. <i>High Speed Flight — N/A</i>	—	—
11.2 <i>Airframe Structures — General Concepts</i>		
(a) Airworthiness requirements for structural strength; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; Aircraft bonding.	2	2
(b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as	1	2

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.		
11.3 <i>Airframe Structures — Aeroplanes</i>		
11.3.1 <i>Fuselage (ATA 52/53/56)</i>	1	2
Construction and pressurisation sealing;		
Wing, tail-plane, pylon and undercarriage attachments;		
Seat installation;		
Doors and emergency exits: construction and operation;		
Windows and windscreen attachment.		
11.3.2 <i>Wings (ATA 57)</i>	1	2
Construction;		
Fuel storage;		
Landing gear, pylon, control surface and high lift/drag attachments.		
11.3.3 <i>Stabilisers (ATA 55)</i>	1	2
Construction;		
Control surface attachment.		
11.3.4 <i>Flight Control Surfaces (ATA 55/57)</i>	1	2
Construction and attachment;		
Balancing — mass and aerodynamic.		
11.3.5 <i>Nacelles/Pylons (ATA 54)</i>	1	2
Nacelles/Pylons: — Construction,	—	—

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

—	Firewalls,		
—	Engine mounts.		
11.4	<i>Air Conditioning and Cabin Pressurisation (ATA 21)</i>	1	3
	Pressurisation and air conditioning systems;		
	Cabin pressure controllers, protection and warning devices;		
	Heating systems.		
11.5	<i>Instruments/Avionic Systems</i>		
11.5.1	<i>Instrument Systems (ATA 31)</i>	1	2
	Pitot static: altimeter, air speed indicator, vertical speed indicator;		
	Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator;		
	Compasses: direct reading, remote reading;		
	Angle of attack indication, stall warning systems;		
	Glass cockpit;		
	Other aircraft system indication.		
11.5.2	<i>Avionic Systems</i>	1	1
	Fundamentals of system layouts and operation of:	—	—
	— Auto Flight (ATA 22),		
	— Communications (ATA 23),		
	— Navigation Systems (ATA 34).		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

11.6	<i>Electrical Power (ATA 24)</i>	1	3
	Batteries Installation and Operation;		
	DC power generation;		
	Voltage regulation;		
	Power distribution;		
	Circuit protection;		
	Inverters, transformers.		
11.7	<i>Equipment and Furnishings (ATA 25)</i>		
(a)	Emergency equipment requirements; Seats, harnesses and belts;	2	2
(b)	Cabin lay-out; Equipment lay-out; Cabin Furnishing installation; Cabin entertainment equipment; Galley installation; Cargo handling and retention equipment; Airstairs.	1	1
11.8	<i>Fire Protection (ATA 26)</i>		
(a)	Fire and smoke detection and warning systems; Fire extinguishing systems; System tests;	1	3
(b)	Portable fire extinguisher.	1	[F42]
11.9	<i>Flight Controls (ATA 27)</i>	1	3
	Primary controls: aileron, elevator, rudder;		
	Trim tabs;		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) [View outstanding changes](#)

High lift devices;		
System operation: manual;		
Gust locks;		
Balancing and rigging;		
Stall warning system.		
11.10 <i>Fuel Systems (ATA 28)</i>	1	3
System lay-out;		
Fuel tanks;		
Supply systems;		
Cross-feed and transfer;		
Indications and warnings;		
Refuelling and defuelling.		
11.11 <i>Hydraulic Power (ATA 29)</i>	1	3
System lay-out;		
Hydraulic fluids;		
Hydraulic reservoirs and accumulators;		
Pressure generation: electric, mechanical;		
Filters;		
Pressure Control;		
Power distribution;		
Indication and warning systems.		
11.12 <i>Ice and Rain Protection (ATA 30)</i>	1	3
Ice formation, classification and detection;		
De-icing systems: electrical, hot air, pneumatic and chemical;		
Probe and drain heating;		
Wiper systems.		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

11.13	<i>Landing Gear (ATA 32)</i>	2	3
	Construction, shock absorbing;		
	Extension and retraction systems: normal and emergency;		
	Indications and warning;		
	Wheels, brakes, antiskid and autobraking;		
	Tyres;		
	Steering;		
	Air-ground sensing.		
11.14	<i>Lights (ATA 33)</i>	2	3
	External: navigation, anti collision, landing, taxiing, ice;		
	Internal: cabin, cockpit, cargo;		
	Emergency.		
11.15	<i>Oxygen (ATA 35)</i>	1	3
	System lay-out: cockpit, cabin;		
	Sources, storage, charging and distribution;		
	Supply regulation;		
	Indications and warnings.		
[^{F4} 11.16	<i>Pneumatic/Vacuum (ATA 36)]</i>	1	3
	[^{F4} System lay-out;]		
	[^{F4} Sources: engine/APU, compressors, reservoirs, ground supply;]		
	[^{F4} Pressure and vacuum pumps;]		
	[^{F4} Pressure control;]		
	[^{F4} Distribution;]		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

[^{F4} Indications and warnings;]		
[^{F4} Interfaces with other systems.]		
11.17 <i>Water/Waste (ATA 38)</i>	2	3
Water system lay-out, supply, distribution, servicing and draining;		
Toilet system lay-out, flushing and servicing;		
Corrosion aspects.		

MODULE 11C: B3 AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Note: The scope of this module shall reflect the technology of aeroplanes pertinent to the B3 category.

	LEVEL
	B3
11.1 <i>Theory of Flight</i>	
<i>Aeroplane Aerodynamics and Flight Controls</i>	1
Operation and effect of: <ul style="list-style-type: none"> — roll control: ailerons, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters; 	—
Control using elevons, ruddervators;	
High lift devices, slots, slats, flaps, flaperons;	
Drag inducing devices, lift dumpers, speed brakes;	
Effects of wing fences, saw tooth leading edges;	
Boundary layer control using, vortex generators, stall wedges or leading edge devices;	
Operation and effect of trim tabs, balance and anti-balance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels.	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

11.2 <i>Airframe Structures — General Concepts</i>	
(a) Airworthiness requirements for structural strength; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; Aircraft bonding;	2
(b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.	2
11.3 <i>Airframe Structures — Aeroplanes</i>	
11.3.1 <i>Fuselage (ATA 52/53/56)</i>	1
Construction;	
Wing, tail-plane, pylon and undercarriage attachments;	
Seat installation;	
Doors and emergency exits: construction and operation;	
Window and windscreen attachment.	
11.3.2 <i>Wings (ATA 57)</i>	1
Construction;	
Fuel storage;	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Landing gear, pylon, control surface and high lift/drag attachments.	
11.3.3 <i>Stabilisers (ATA 55)</i>	1
Construction;	
Control surface attachment.	
11.3.4 <i>Flight Control Surfaces (ATA 55/57)</i>	1
Construction and attachment;	
Balancing — mass and aerodynamic.	
11.3.5 <i>Nacelles/Pylons (ATA 54)</i>	
Nacelles/Pylons:	1
— Construction,	
— Firewalls,	
— Engine mounts.	
11.4 <i>Air Conditioning (ATA 21)</i>	
Heating and ventilation systems.	1
11.5 <i>Instruments/Avionic Systems</i>	
11.5.1 <i>Instrument Systems (ATA 31)</i>	1
Pitot static: altimeter, air speed indicator, vertical speed indicator;	
Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator;	
Compasses: direct reading, remote reading;	
Angle of attack indication, stall warning systems;	
Glass cockpit;	
Other aircraft system indication.	
11.5.2 <i>Avionic Systems</i>	1
Fundamentals of system lay-outs and operation of:	—
— Auto Flight (ATA 22),	
— Communications (ATA 23),	
— Navigation Systems (ATA 34).	
11.6 <i>Electrical Power (ATA 24)</i>	2

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Batteries Installation and Operation;	
DC power generation;	
Voltage regulation;	
Power distribution;	
Circuit protection;	
Inverters, transformers.	
11.7 <i>Equipment and Furnishings (ATA 25)</i>	2
Emergency equipment requirements;	
Seats, harnesses and belts.	
11.8 <i>Fire Protection (ATA 26)</i>	2
Portable fire extinguisher.	
11.9 <i>Flight Controls (ATA 27)</i>	3
Primary controls: aileron, elevator, rudder;	
Trim tabs;	
High lift devices;	
System operation: manual;	
Gust locks;	
Balancing and rigging;	
Stall warning system.	
11.10 <i>Fuel Systems (ATA 28)</i>	2
System lay-out;	
Fuel tanks;	
Supply systems;	
Cross-feed and transfer;	
Indications and warnings;	
Refuelling and defuelling.	
11.11 <i>Hydraulic Power (ATA 29)</i>	2
System lay-out;	
Hydraulic fluids;	
Hydraulic reservoirs and accumulators;	
Pressure generation: electric, mechanical;	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Filters;	
Pressure Control;	
Power distribution;	
Indication and warning systems.	
11.12 <i>Ice and Rain Protection (ATA 30)</i>	1
Ice formation, classification and detection;	
De-icing systems: electrical, hot air, pneumatic and chemical;	
Probe and drain heating;	
Wiper systems.	
11.13 <i>Landing Gear (ATA 32)</i>	2
Construction, shock absorbing;	
Extension and retraction systems: normal and emergency;	
Indications and warning;	
Wheels, brakes, antiskid and autobraking;	
Tyres;	
Steering.	
11.14 <i>Lights (ATA 33)</i>	2
External: navigation, anti collision, landing, taxiing, ice;	
Internal: cabin, cockpit, cargo;	
Emergency.	
11.15 <i>Oxygen (ATA 35)</i>	2
System lay-out: cockpit, cabin;	
Sources, storage, charging and distribution;	
Supply regulation;	
Indications and warnings.	
11.16 <i>Pneumatic/Vacuum (ATA 36)</i>	2
System lay-out;	
Sources: engine/APU, compressors, reservoirs, ground supply;	
Pressure and vacuum pumps	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Pressure control;	
Distribution;	
Indications and warnings;	
Interfaces with other systems.	

MODULE HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS

12.

	LEVEL	
	A3A4	B1.3B1.4
12.1 <i>Theory of Flight — Rotary Wing Aerodynamics</i>	1	2
Terminology;		
Effects of gyroscopic precession;		
Torque reaction and directional control;		
Dissymmetry of lift, Blade tip stall;		
Translating tendency and its correction;		
Coriolis effect and compensation;		
Vortex ring state, power settling, overpitching;		
Auto-rotation;		
Ground effect.		
12.2 <i>Flight Control Systems</i>	2	3
Cyclic control;		
Collective control;		
Swashplate;		
Yaw control: Anti-Torque Control, Tail rotor, bleed air;		
Main Rotor Head: Design and Operation features;		
Blade Dampers: Function and construction;		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Rotor Blades: Main and tail rotor blade construction and attachment;		
Trim control, fixed and adjustable stabilisers;		
System operation: manual, hydraulic, electrical and fly-by-wire;		
Artificial feel;		
Balancing and rigging.		
12.3 <i>Blade Tracking and Vibration Analysis</i>	1	3
Rotor alignment;		
Main and tail rotor tracking;		
Static and dynamic balancing;		
Vibration types, vibration reduction methods;		
Ground resonance.		
12.4 <i>Transmission</i>	1	3
Gear boxes, main and tail rotors;		
Clutches, free wheel units and rotor brake;		
Tail rotor drive shafts, flexible couplings, bearings, vibration dampers and bearing hangers.		
12.5 <i>Airframe Structures</i>		
(a) Airworthiness requirements for structural strength; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems;	2	2

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

<p>Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision;</p>		
<p>(b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning and anti-corrosive protection. Pylon, stabiliser and undercarriage attachments; Seat installation; Doors: construction, mechanisms, operation and safety devices; Windows and windscreen construction; Fuel storage; Firewalls; Engine mounts; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning. Airframe symmetry: methods of alignment and symmetry checks.</p>	1	2
<p>12.6 <i>Air Conditioning (ATA 21)</i></p>		
<p>12.6.1 <i>Air supply</i></p>	1	2

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) [View outstanding changes](#)

Sources of air supply including engine bleed and ground cart.		
12.6.2 <i>Air conditioning</i>	1	3
Air conditioning systems;		
Distribution systems;		
Flow and temperature control systems;		
Protection and warning devices.		
12.7 <i>Instruments/Avionic Systems</i>		
12.7.1 <i>Instrument Systems (ATA 31)</i>	1	2
Pitot static: altimeter, air speed indicator, vertical speed indicator;		
Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator;		
Compasses: direct reading, remote reading;		
Vibration indicating systems — HUMS;		
Glass cockpit;		
Other aircraft system indication.		
12.7.2 <i>Avionic Systems</i>	1	1
Fundamentals of system layouts and operation of: Auto Flight (ATA 22); Communications (ATA 23); Navigation Systems (ATA 34).		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

12.8	<i>Electrical Power (ATA 24)</i>	1	3
	Batteries Installation and Operation;		
	DC power generation, AC power generation;		
	Emergency power generation;		
	Voltage regulation, Circuit protection.		
	Power distribution;		
	Inverters, transformers, rectifiers;		
	External/Ground power.		
12.9	<i>Equipment and Furnishings (ATA 25)</i>		
(a)	Emergency equipment requirements; Seats, harnesses and belts; Lifting systems;	2	2
(b)	Emergency flotation systems; Cabin lay-out, cargo retention; Equipment lay-out; Cabin Furnishing Installation.	1	1
12.10	<i>Fire Protection (ATA 26)</i>	1	3
	Fire and smoke detection and warning systems;		
	Fire extinguishing systems;		
	System tests.		
12.11	<i>Fuel Systems (ATA 28)</i>	1	3
	System lay-out;		
	Fuel tanks;		
	Supply systems;		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Dumping, venting and draining;		
Cross-feed and transfer;		
Indications and warnings;		
Refuelling and defuelling.		
12.12 <i>Hydraulic Power (ATA 29)</i>	1	3
System lay-out;		
Hydraulic fluids;		
Hydraulic reservoirs and accumulators;		
Pressure generation: electric, mechanical, pneumatic;		
Emergency pressure generation;		
Filters;		
Pressure Control;		
Power distribution;		
Indication and warning systems;		
Interface with other systems.		
12.13 <i>Ice and Rain Protection (ATA 30)</i>	1	3
Ice formation, classification and detection;		
Anti-icing and De-icing systems: electrical, hot air and chemical;		
Rain repellent and removal;		
Probe and drain heating;		
Wiper system.		
12.14 <i>Landing Gear (ATA 32)</i>	2	3
Construction, shock absorbing;		
Extension and retraction systems: normal and emergency;		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Indications and warning;		
Wheels, Tyres, brakes;		
Steering;		
Air-ground sensing;		
Skids, floats.		
12.15 <i>Lights (ATA 33)</i>	2	3
External: navigation, landing, taxiing, ice;		
Internal: cabin, cockpit, cargo;		
Emergency.		
[^{F4} 12.16 <i>Pneumatic/Vacuum (ATA 36)</i>]	1	3
[^{F4} System lay-out;]		
[^{F4} Sources: engine/APU, compressors, reservoirs, ground supply;]		
[^{F4} Pressure and vacuum pumps;]		
[^{F4} Pressure control;]		
[^{F4} Distribution;]		
[^{F4} Indications and warnings;]		
[^{F4} Interfaces with other systems.]		
12.17 <i>Integrated Modular Avionics (ATA42)</i>	1	2
Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc.		
Core System;		
Network Components.		
12.18 <i>On Board Maintenance Systems (ATA45)</i>	1	2
Central maintenance computers;		
Data loading system;		
Electronic library system;		
Printing;		
Structure monitoring (damage tolerance monitoring).		
12.19 <i>Information Systems (ATA46)</i>	1	2
The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display.		
Typical examples include Air Traffic and Information		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Management Systems and Network Server Systems.		
Aircraft General Information System;		
Flight Deck Information System;		
Maintenance Information System;		
Passenger Cabin Information System;		
Miscellaneous Information System.		

^{F4} MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

13.

	LEVEL
	B2 B2L
13.1 <i>Theory of Flight</i>	
(a) <i>Aeroplane Aerodynamics and Flight Controls</i>	1
Operation and effect of: — roll control: ailerons and spoilers; — pitch control: elevators, stabilators, variable incidence stabilisers and canards; and — yaw control: rudder limiters; Control using elevons, ruddervators; High lift devices: slots, slats, flaps; Drag inducing devices: spoilers, lift dumpers, speed brakes; and Operation and effect of trim tabs, servo tabs and control surface bias.	
(b) <i>High-Speed Flight</i>	1
Speed of sound, subsonic flight, transonic flight, supersonic flight; Mach number, critical Mach number.	
(c) <i>Rotary Wing Aerodynamics</i>	1
Terminology; Operation and effect of cyclic, collective and anti-torque controls.	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

13.2	<i>Structures — General Concepts</i>	
	Fundamentals of Structural Systems	1
	Zonal and Station Identification Systems	2
	Electrical bonding	2
	Lightning strike protection provision.	2
13.3	<i>Autoflight (ATA 22)</i>	
	(a)	3
	Fundamentals of automatic flight control including working principles and current terminology; Command signal processing; Modes of operation: roll, pitch and yaw channels; Yaw dampers; Stability Augmentation System in helicopters; Automatic trim control; Autopilot navigation aids interface;	
	(b)	3
	Autothrottle systems; Automatic landing systems: principles and categories, modes of operation, approach, glideslope, land, go-around, system monitors and failure conditions.	
13.4	<i>Communication/Navigation (ATA 23/34)</i>	
	(a)	3
	Fundamentals of radio wave propagation, antennas, transmission lines, communication, receiver and transmitter; Working principles of following systems: — Very High Frequency (VHF) communication; — High Frequency (HF) communication; — Audio; — Emergency Locator Transmitters (ELTs); — Cockpit Voice Recorder (CVR); — Very High Frequency Omnidirectional Range (VOR); — Automatic Direction Finding (ADF); — Instrument Landing System (ILS);	

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—	Flight Director Systems (FDSs), Distance Measuring Equipment (DME);	
—	Area navigation, RNAV systems;	
—	Flight Management Systems (FMSs);	
—	Global Positioning System (GPS), Global Navigation Satellite Systems (GNSSs);	
—	Data Link.	
(b)		3
—	Air Traffic Control transponder, secondary surveillance radar;	
—	Traffic Alert and Collision Avoidance System (TCAS);	
—	Weather avoidance radar;	
—	Radio altimeter;	
—	Automatic Dependent Surveillance — Broadcast (ADS- B).	
(c)		3
—	Microwave Landing System (MLS);	
—	Very Low Frequency and hyperbolic navigation (VLF/ Omega);	
—	Doppler navigation;	
—	Inertial Navigation System (INS);	
—	ARINC (Aircraft Radio Incorporated) communication and reporting.	
13.5	<i>Electrical Power (ATA 24)</i>	3
	Batteries installation and operation; Direct Current (DC) power generation; Alternating Current (AC) power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection; External/Ground power.	
13.6	<i>Equipment and Furnishings (ATA 25)</i>	3
	Electronic emergency equipment requirements; Cabin entertainment equipment.	

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13.7	<i>Flight Controls (ATA 27)</i>	
(a)		2
	Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks; Stall protection systems.	
(b)		3
	System operation: electrical, fly-by-wire.	
13.8	<i>Instruments (ATA 31)</i>	3
	Classification; Atmosphere; Terminology; Pressure-measuring devices and systems; Pitot-static systems; Altimeters; Vertical-speed indicators; Airspeed indicators; Machmeters; Altitude-reporting/alerting systems; Air data computers; Instrument pneumatic systems; Direct-reading pressure and temperature gauges; Temperature-indicating systems; Fuel-quantity-indicating systems; Gyroscopic principles; Artificial horizons; Slip indicators; Directional gyros; Ground Proximity Warning Systems (GPWSs); Compass systems; Flight Data Recording Systems (FDRSs); Electronic Flight Instrument Systems (EFISs); Instrument warning systems including master warning systems and centralised warning panels; Stall warning systems and angle of attack-indicating systems; Vibration measurement and indication;	

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Glass cockpit.	
13.9 <i>Lights (ATA 33)</i>	3
External: navigation, landing, taxiing, ice; Internal: cabin, cockpit, cargo; Emergency.	
13.10 <i>On-Board Maintenance Systems (ATA 45)</i>	3
Central maintenance computers; Data-loading system; Electronic-library system; Printing system; Structure-monitoring system (damage tolerance monitoring).	
13.11 <i>Air Conditioning and Cabin Pressurisation (ATA 21)</i>	
13.11.1 <i>Air Supply</i>	2
Sources of air supply including engine bleed, APU and ground cart;	
13.11.2 <i>Air Conditioning</i>	
Air-conditioning systems;	2
Air cycle and vapour cycle machines;	3
Distribution systems;	1
Flow, temperature and humidity control system.	3
13.11.3 <i>Pressurisation</i>	3
Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers.	
13.11.4 <i>Safety and Warning Devices</i>	3
Protection and warning devices.	
13.12 <i>Fire Protection (ATA 26)</i>	
(a)	3
Fire and smoke detection and warning systems; Fire-extinguishing systems; System tests.	

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(b)	1
Portable fire extinguisher.	
13.13 <i>Fuel Systems (ATA 28)</i>	
System layout;	1
Fuel tanks;	1
Supply systems;	1
Dumping, venting and draining;	1
Cross feed and transfer;	2
Indications and warnings;	3
Refuelling and defuelling;	2
Longitudinal-balance fuel systems.	3
13.14 <i>Hydraulic Power (ATA 29)</i>	
System layout;	1
Hydraulic fluids;	1
Hydraulic reservoirs and accumulators;	1
Pressure generation: electrical, mechanical, pneumatic;	3
Emergency pressure generation;	3
Filters;	1
Pressure control;	3
Power distribution;	1
Indication and warning systems;	3
Interface with other systems.	3
13.15 <i>Ice and Rain Protection (ATA 30)</i>	
Ice formation, classification and detection;	2
Anti-icing systems: electrical, hot-air and chemical;	2
De-icing systems: electrical, hot-air, pneumatic, chemical;	3
Rain-repellent;	1
Probe and drain-heating;	3
Wiper systems.	1
13.16 <i>Landing Gear (ATA 32)</i>	

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Construction, shock absorbing;	1
Extension and retraction systems: normal and emergency;	3
Indications and warnings;	3
Wheels, brakes, antiskid and automatic braking systems;	3
Tyres;	1
Steering;	3
Air-ground sensing.	3
13.17 <i>Oxygen (ATA 35)</i>	
System layout: cockpit, cabin;	3
Sources, storage, charging and distribution;	3
Supply regulation;	3
Indications and warnings.	3
13.18 <i>Pneumatic/Vacuum (ATA 36)</i>	
System layout;	2
Sources: engine/APU, compressors, reservoirs, ground supply;	2
Pressure control;	3
Distribution;	1
Indications and warnings;	3
Interfaces with other systems.	3
13.19 <i>Water/Waste (ATA 38)</i>	
Water system layout, supply, distribution, servicing and draining; Toilet system layout, flushing and servicing.	2
13.20 <i>Integrated Modular Avionics (IMA) (ATA 42)</i>	
Core system; Network components. <i>Note: Functions that may be typically integrated into the IMA modules are among others:</i> — <i>bleed management;</i> — <i>air pressure control;</i> — <i>air ventilation and control;</i> — <i>avionics and cockpit ventilation control, temperature control;</i>	3

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<ul style="list-style-type: none"> — <i>air traffic communication;</i> — <i>avionics communication router;</i> — <i>electrical load management;</i> — <i>circuit breaker monitoring;</i> — <i>electrical system Built-In Test Equipment (BITE);</i> — <i>fuel management;</i> — <i>braking control;</i> — <i>steering control;</i> — <i>landing gear extension and retraction;</i> — <i>tyre pressure indication;</i> — <i>oleo pressure indication;</i> — <i>brake temperature monitoring.</i> 	
<p>13.21 <i>Cabin Systems (ATA 44)</i></p>	<p>3</p>
<p>The units and components which furnish a means of entertaining the passengers and providing communication within the aircraft (Cabin Intercommunication Data System (CIDS)) and between the aircraft cabin and ground stations (Cabin Network Service (CNS)). They include voice, data, music and video transmissions.</p> <p>CIDS provides an interface between cockpit/ cabin crew and cabin systems. These systems support data exchange between the different related Line Replaceable Units (LRUs) and they are typically operated via Flight Attendant Panels (FAPs).</p> <p>CNS typically consists of a server, interfacing with, among others, the following systems:</p> <ul style="list-style-type: none"> — <i>Data/Radio Communication;</i> — <i>Cabin Core System (CCS);</i> — <i>In-flight Entertainment System (IFES);</i> — <i>External Communication System (ECS);</i> — <i>Cabin Mass Memory System (CMMS);</i> — <i>Cabin Monitoring System (CMS);</i> — <i>Miscellaneous Cabin Systems (MCSs).</i> <p>CNS may host functions such as:</p> <ul style="list-style-type: none"> — <i>access to pre-departure/departure reports;</i> — <i>e-mail/intranet/internet access;</i> — <i>passenger database.</i> 	
<p>13.22 <i>Information Systems (ATA 46)</i></p>	<p>3</p>

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<p>The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. They include units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller, but they do not include units or components installed for other uses and shared with other systems, such as flight deck printer or general-use display.</p> <p>Typical examples include:</p> <ul style="list-style-type: none"> — Air Traffic and Information Management systems and Network Server systems. — Aircraft general information system; — Flight deck information system; — Maintenance information system; — Passenger cabin information system; — Miscellaneous information systems. 	
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MODULE PROPULSION

14.

		LEVEL
		[^{F4} B2 B2L]
14.1	<i>Turbine Engines</i>	
(a)	Constructional arrangement and operation of turbojet, turbofan, turboshaft and turbopropeller engines;	1
(b)	Electronic Engine control and fuel metering systems (FADEC).	2
14.2	<i>Engine Indicating Systems</i>	2
	Exhaust gas temperature/Interstage turbine temperature systems;	
	Engine speed;	
	Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems;	
	Oil pressure and temperature;	

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Fuel pressure, temperature and flow;	
Manifold pressure;	
Engine torque;	
Propeller speed.	
14.3 <i>Starting and Ignition Systems</i>	2
Operation of engine start systems and components;	
Ignition systems and components;	
Maintenance safety requirements.	

MODULE GAS TURBINE ENGINE

15.

	LEVEL	
	A	B1
15.1 <i>Fundamentals</i>	1	2
Potential energy, kinetic energy, Newton's laws of motion, Brayton cycle;		
The relationship between force, work, power, energy, velocity, acceleration;		
Constructional arrangement and operation of turbojet, turbofan, turboshaft, turboprop.		
15.2 <i>Engine Performance</i>	—	2
Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust, thrust horsepower, equivalent shaft horsepower, specific fuel consumption;		
Engine efficiencies;		
By-pass ratio and engine pressure ratio;		
Pressure, temperature and velocity of the gas flow;		

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Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating, limitations.		
15.3 <i>Inlet</i>	2	2
Compressor inlet ducts		
Effects of various inlet configurations;		
Ice protection.		
15.4 <i>Compressors</i>	1	2
Axial and centrifugal types;		
Constructional features and operating principles and applications;		
Fan balancing;		
Operation:		
Causes and effects of compressor stall and surge;		
Methods of air flow control: bleed valves, variable inlet guide vanes, variable stator vanes, rotating stator blades;		
Compressor ratio.		
15.5 <i>Combustion Section</i>	1	2
Constructional features and principles of operation.		
15.6 <i>Turbine Section</i>	2	2
Operation and characteristics of different turbine blade types;		
Blade to disk attachment;		
Nozzle guide vanes;		
Causes and effects of turbine blade stress and creep.		
15.7 <i>Exhaust</i>	1	2
Constructional features and principles of operation;		

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Convergent, divergent and variable area nozzles;		
Engine noise reduction;		
Thrust reversers.		
15.8 <i>Bearings and Seals</i>	—	2
Constructional features and principles of operation.		
15.9 <i>Lubricants and Fuels</i>	1	2
Properties and specifications;		
Fuel additives;		
Safety precautions.		
15.10 <i>Lubrication Systems</i>	1	2
System operation/lay-out and components.		
15.11 <i>Fuel Systems</i>	1	2
Operation of engine control and fuel metering systems including electronic engine control (FADEC);		
Systems lay-out and components.		
15.12 <i>Air Systems</i>	1	2
Operation of engine air distribution and anti-ice control systems, including internal cooling, sealing and external air services.		
15.13 <i>Starting and Ignition Systems</i>	1	2
Operation of engine start systems and components;		
Ignition systems and components;		
Maintenance safety requirements.		

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

15.14	<i>Engine Indication Systems</i>	1	2
	Exhaust Gas Temperature/ Interstage Turbine Temperature;		
	Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems;		
	Oil pressure and temperature;		
	Fuel pressure and flow;		
	Engine speed;		
	Vibration measurement and indication;		
	Torque;		
	Power.		
15.15	<i>Power Augmentation Systems</i>	—	1
	Operation and applications;		
	Water injection, water methanol;		
	Afterburner systems.		
15.16	<i>Turbo-prop Engines</i>	1	2
	Gas coupled/free turbine and gear coupled turbines;		
	Reduction gears;		
	Integrated engine and propeller controls;		
	Overspeed safety devices.		
15.17	<i>Turbo-shaft Engines</i>	1	2
	Arrangements, drive systems, reduction gearing, couplings, control systems.		
15.18	<i>Auxiliary Power Units (APUs)</i>	1	2

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Purpose, operation, protective systems.		
15.19 <i>Powerplant Installation</i>	1	2
Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.		
15.20 <i>Fire Protection Systems</i>	1	2
Operation of detection and extinguishing systems.		
15.21 <i>Engine Monitoring and Ground Operation</i>	1	3
Procedures for starting and ground run-up;		
Interpretation of engine power output and parameters;		
Trend (including oil analysis, vibration and boroscope) monitoring;		
Inspection of engine and components to criteria, tolerances and data specified by engine manufacturer;		
Compressor washing/cleaning;		
Foreign Object Damage.		
15.22 <i>Engine Storage and Preservation</i>	—	2
Preservation and depreservation for the engine and accessories/systems.		

MODULE 16. ISTRON ENGINE

16.

LEVEL

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

	A	B1	B3
16.1 <i>Fundamentals</i>	1	2	2
Mechanical, thermal and volumetric efficiencies;			
Operating principles — 2 stroke, 4 stroke, Otto and Diesel;			
Piston displacement and compression ratio;			
Engine configuration and firing order.			
16.2 <i>Engine Performance</i>	1	2	2
Power calculation and measurement;			
Factors affecting engine power;			
Mixtures/leaning, pre-ignition.			
16.3 <i>Engine Construction</i>	1	2	2
Crank case, crank shaft, cam shafts, sumps;			
Accessory gearbox;			
Cylinder and piston assemblies;			
Connecting rods, inlet and exhaust manifolds;			
Valve mechanisms;			
Propeller reduction gearboxes.			
16.4 <i>Engine Fuel Systems</i>			
16.4.1 <i>Carburettors</i>	1	2	2

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Types, construction and principles of operation;			
Icing and heating.			
16.4.2 <i>Fuel injection systems</i>	1	2	2
Types, construction and principles of operation.			
16.4.3 <i>Electronic engine control</i>	1	2	2
Operation of engine control and fuel metering systems including electronic engine control (FADEC);			
Systems lay-out and components.			
16.5 <i>Starting and Ignition Systems</i>	1	2	2
Starting systems, pre-heat systems;			
Magneto types, construction and principles of operation;			
Ignition harnesses, spark plugs;			
Low and high tension systems.			
16.6 <i>Induction, Exhaust and Cooling Systems</i>	1	2	2
Construction and operation of: induction systems including alternate air systems;			

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Exhaust systems, engine cooling systems — air and liquid.			
16.7 <i>Supercharging/ Turbocharging</i>	1	2	2
Principles and purpose of supercharging and its effects on engine parameters;			
Construction and operation of supercharging/turbocharging systems;			
System terminology;			
Control systems;			
System protection.			
16.8 <i>Lubricants and Fuels</i>	1	2	2
Properties and specifications;			
Fuel additives;			
Safety precautions.			
16.9 <i>Lubrication Systems</i>	1	2	2
System operation/layout and components.			
16.10 <i>Engine Indication Systems</i>	1	2	2
Engine speed;			
Cylinder head temperature;			
Coolant temperature;			
Oil pressure and temperature;			
Exhaust Gas Temperature;			

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Fuel pressure and flow;			
Manifold pressure.			
16.11 <i>Powerplant Installation</i>	1	2	2
Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.			
16.12 <i>Engine Monitoring and Ground Operation</i>	1	3	2
Procedures for starting and ground run-up;			
Interpretation of engine power output and parameters;			
Inspection of engine and components: criteria, tolerances, and data specified by engine manufacturer.			
16.13 <i>Engine Storage and Preservation</i>	—	2	1
Preservation and depreservation for the engine and accessories/systems.			

MODULÆPROPELLER

17A.

Note: This module does not apply to category B3. Relevant subject matters for category B3 are defined in module 17B.

LEVEL

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

	A	B1
17.1 <i>Fundamentals</i>	1	2
Blade element theory;		
High/low blade angle, reverse angle, angle of attack, rotational speed;		
Propeller slip;		
Aerodynamic, centrifugal, and thrust forces;		
Torque;		
Relative airflow on blade angle of attack;		
Vibration and resonance.		
17.2 <i>Propeller Construction</i>	1	2
Construction methods and materials used in wooden, composite and metal propellers;		
Blade station, blade face, blade shank, blade back and hub assembly;		
Fixed pitch, controllable pitch, constant speeding propeller;		
Propeller/spinner installation.		
17.3 <i>Propeller Pitch Control</i>	1	2
Speed control and pitch change methods, mechanical and electrical/electronic;		
Feathering and reverse pitch;		
Overspeed protection.		
17.4 <i>Propeller Synchronising</i>	—	2
Synchronising and synchrophasing equipment.		
17.5 <i>Propeller Ice Protection</i>	1	2

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Fluid and electrical de-icing equipment.		
17.6 <i>Propeller Maintenance</i>	1	3
Static and dynamic balancing;		
Blade tracking;		
Assessment of blade damage, erosion, corrosion, impact damage, delamination;		
Propeller treatment/repair schemes;		
Propeller engine running.		
17.7 <i>Propeller Storage and Preservation</i>	1	2
Propeller preservation and depreservation.		

MODULE PROPELLER

17B.

Note: The scope of this Module shall reflect the propeller technology of aeroplanes pertinent to the B3 category.

	LEVEL
	B3
17.1 <i>Fundamentals</i>	2
Blade element theory;	
High/low blade angle, reverse angle, angle of attack, rotational speed;	
Propeller slip;	
Aerodynamic, centrifugal, and thrust forces;	
Torque;	
Relative airflow on blade angle of attack;	
Vibration and resonance.	
17.2 <i>Propeller Construction</i>	2
Construction methods and material used in wooden, composite and metal propellers;	

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Blade station, blade face, blade shank, blade back and hub assembly;	
Fixed pitch, controllable pitch, constant speed propeller;	
Propeller/spinner installation.	
17.3 <i>Propeller Pitch Control</i>	2
Speed control and pitch change methods, mechanical and electrical/electronic;	
Feathering and reverse pitch;	
Overspeed protection.	
17.4 <i>Propeller Synchronising</i>	2
Synchronising and synchrophasing equipment.	
17.5 <i>Propeller Ice Protection</i>	2
Fluid and electrical de-icing equipment.	
17.6 <i>Propeller Maintenance</i>	2
Static and dynamic balancing;	
Blade tracking;	
Assessment of blade damage, erosion, corrosion, impact damage, delamination;	
Propeller treatment/repair schemes;	
Propeller engine running.	
17.7 <i>Propeller Storage and Preservation</i>	2
Propeller preservation and depreservation.	

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[^{F4}Appendix II

Basic Examination Standard

(except for category L licence)]

1. General

- 1.1. All basic examinations shall be carried out using the multi-choice question format and essay questions as specified below. The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All of the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length. In numerical questions, the incorrect answers shall correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they shall not be mere random numbers.
- 1.2. Each multi-choice question shall have three alternative answers of which only one shall be the correct answer and the candidate shall be allowed a time per module which is based upon a nominal average of 75 seconds per question.
- 1.3. Each essay question requires the preparation of a written answer and the candidate shall be allowed 20 minutes to answer each such question.
- 1.4. Suitable essay questions shall be drafted and evaluated using the knowledge syllabus in Appendix I Modules 7A, 7B, 9A, 9B and 10.
- 1.5. Each question will have a model answer drafted for it, which will also include any known alternative answers that may be relevant for other subdivisions.
- 1.6. The model answer will also be broken down into a list of the important points known as Key Points.
- 1.7. The pass mark for each module and sub-module multi-choice part of the examination is 75 %.
- 1.8. The pass mark for each essay question is 75 % in that the candidates answer shall contain 75 % of the required key points addressed by the question and no significant error related to any required key point.
- 1.9. If either the multi-choice part only or the essay part only is failed, then it is only necessary to retake the multi-choice or essay part, as appropriate.
- 1.10. Penalty marking systems shall not be used to determine whether a candidate has passed.
- 1.11. A failed module may not be retaken for at least 90 days following the date of the failed module examination, except in the case of a maintenance training organisation approved in accordance with Annex IV (Part-147) which conducts a course of retraining tailored to the failed subjects in the particular module when the failed module may be retaken after 30 days.
- 1.12. The time periods required by point 66.A.25 apply to each individual module examination, with the exception of those module examinations which were passed as part of another category licence, where the licence has already been issued.

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

- 1.13. The maximum number of consecutive attempts for each module is three. Further sets of three attempts are allowed with a 1 year waiting period between sets.

The applicant shall confirm in writing to the approved maintenance training organisation or the [F70CAA] to which they apply for an examination, the number and dates of attempts during the last year and the organisation or the [F70CAA] where these attempts took place. The maintenance training organisation or the [F70CAA] is responsible for checking the number of attempts within the applicable timeframes.

Textual Amendments

F70 Word in Annex 3 Appendix 2 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 278(3) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

2. Number of questions per module

2.1. MODULE 1 — MATHEMATICS

Category A: 16 multi-choice and 0 essay questions. Time allowed 20 minutes.

Category B1: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

[F4Category B2 and B2L]: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

Category B3: 28 multi-choice and 0 essay questions. Time allowed 35 minutes.

2.2. MODULE 2 — PHYSICS

Category A: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

Category B1: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

[F4Category B2 and B2L]: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B3: 28 multi-choice and 0 essay questions. Time allowed 35 minutes.

2.3. MODULE 3 — ELECTRICAL FUNDAMENTALS

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

[F4Category B2 and B2L]: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B3: 24 multi-choice and 0 essay questions. Time allowed 30 minutes.

2.4. MODULE 4 — ELECTRONIC FUNDAMENTALS

Category B1: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

[F4Category B2 and B2L]: 40 multi-choice and 0 essay questions. Time allowed 50 minutes.

Category B3: 8 multi-choice and 0 essay questions. Time allowed 10 minutes.

2.5. MODULE 5 — DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

Category A: 16 multi-choice and 0 essay questions. Time allowed 20 minutes.

Category B1.1 and B1.3: 40 multi-choice and 0 essay questions. Time allowed 50 minutes.

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Category B1.2 and B1.4: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

[^{F4}Category B2 and B2L]: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

Category B3: 16 multi-choice and 0 essay questions. Time allowed 20 minutes.

2.6. MODULE 6 — MATERIALS AND HARDWARE

Category A: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B1: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

[^{F4}Category B2 and B2L]: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

Category B3: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

2.7. MODULE 7A — MAINTENANCE PRACTICES

Category A: 72 multi-choice and 2 essay questions. Time allowed 90 minutes plus 40 minutes.

Category B1: 80 multi-choice and 2 essay questions. Time allowed 100 minutes plus 40 minutes.

[^{F4}Category B2 and B2L]: 60 multi-choice and 2 essay questions. Time allowed 75 minutes plus 40 minutes.

MODULE 7B — MAINTENANCE PRACTICES

Category B3: 60 multi-choice and 2 essay questions. Time allowed 75 minutes plus 40 minutes.

2.8. MODULE 8 — BASIC AERODYNAMICS

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B1: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

[^{F4}Category B2 and B2L]: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B3: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

2.9. MODULE 9A — HUMAN FACTORS

Category A: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

Category B1: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

[^{F4}Category B2 and B2L]: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

MODULE 9B — HUMAN FACTORS

Category B3: 16 multi-choice and 1 essay questions. Time allowed 20 minutes plus 20 minutes.

2.10. MODULE 10 — AVIATION LEGISLATION

Category A: 32 multi-choice and 1 essay question. Time allowed 40 minutes plus 20 minutes.

Category B1: 40 multi-choice and 1 essay question. Time allowed 50 minutes plus 20 minutes.

[^{F4}Category B2 and B2L]: 40 multi-choice and 1 essay question. Time allowed 50 minutes plus 20 minutes.

Category B3: 32 multi-choice and 1 essay questions. Time allowed 40 minutes plus 20 minutes.

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2.11. MODULE 11A — TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Category A: 108 multi-choice and 0 essay questions. Time allowed 135 minutes.

Category B1: 140 multi-choice and 0 essay questions. Time allowed 175 minutes.

MODULE 11B — PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Category A: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

Category B1: 100 multi-choice and 0 essay questions. Time allowed 125 minutes.

MODULE 11C — PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

Category B3: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

2.12. MODULE 12 — HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS:

Category A: 100 multi-choice and 0 essay questions. Time allowed 125 minutes.

Category B1: 128 multi-choice and 0 essay questions. Time allowed 160 minutes.

[^F2.13. MODULE 13 — AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

Category B2: 180 multiple-choice and 0 essay questions. Time allowed: 225 minutes. Questions and time allowed may be split into two examinations, as appropriate.

Category B2L:

System rating	Number of multiple-choice questions	Time allowed (minutes)
Basic requirements (Submodules 13.1, 13.2, 13.5 and 13.9)	28	35
COM/NAV (Submodule 13.4(a))	24	30
INSTRUMENTS (Submodule 13.8)	20	25
AUTOFLIGHT (Submodules 13.3(a) and 13.7)	28	35
SURVEILLANCE (Submodule 13.4(b))	8	10
AIRFRAME SYSTEMS (Submodules 13.11 to 13.18)	32	40

2.14. MODULE 14 — PROPULSION

Category B2 and B2L: 24 multiple-choice and 0 essay questions. Time allowed: 30 minutes.

NOTE: The B2L examination for module 14 is only applicable to the ‘ Instruments ’ and ‘ Airframe Systems ’ ratings.]

2.15. MODULE 15 — GAS TURBINE ENGINE

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Category A: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.
Category B1: 92 multi-choice and 0 essay questions. Time allowed 115 minutes.

2.16. MODULE 16 — PISTON ENGINE

Category A: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.
Category B1: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.
Category B3: 68 multi-choice and 0 essay questions. Time allowed 85 minutes.

2.17. MODULE 17A — PROPELLER

Category A: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.
Category B1: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

MODULE 17B — PROPELLER

Category B3: 28 multi-choice and 0 essay questions. Time allowed 35 minutes.

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Appendix III

Aircraft type training and examination standard

On the job training

1. **General**

Aircraft type training shall consist of theoretical training and examination, and, except for the category C ratings, practical training and assessment.

- (a) Theoretical training and examination shall comply with the following requirements:
 - (i) Shall be conducted by a maintenance training organisation appropriately approved in accordance with Annex IV (Part-147) or, when conducted by other organisations, as directly approved by the [F71CAA].
 - (ii) [F4Shall comply, except as permitted by the differences training provided for in point (c), with the standard set out in point 3.1 of this Appendix and, if available, the relevant elements defined in the mandatory part of the operational suitability data established in accordance with Regulation (EU) No 748/2012.]
 - (iii) In the case of a category C person qualified by holding an academic degree as specified in point 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the category B1 or B2 level.
 - (iv) Shall have been started and completed within the 3 years preceding the application for a type rating endorsement.
- (b) Practical training and assessment shall comply with the following requirements:
 - (i) Shall be conducted by a maintenance training organisation appropriately approved in accordance with Annex IV (Part-147) or, when conducted by other organisations, as directly approved by the [F72CAA].
 - (ii) [F4Shall comply, except as permitted by the differences training described in point (c), with the standard set out in point 3.2 of this Appendix and, if available, the relevant elements defined in the mandatory part of the operational suitability data established in accordance with Regulation (EU) No 748/2012.]
 - (iii) Shall include a representative cross section of maintenance activities relevant to the aircraft type.
 - (iv) Shall include demonstrations using equipment, components, simulators, other training devices or aircraft.
 - (v) Shall have been started and completed within the 3 years preceding the application for a type rating endorsement.
- (c) Differences training
 - (i) Differences training is the training required in order to cover the differences between two different aircraft type ratings of the same manufacturer as determined by the [F73CAA].

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- (ii) Differences training has to be defined on a case-to-case basis taking into account the requirements contained in this Appendix III in respect of both theoretical and practical elements of type rating training.
- (iii) A type rating shall only be endorsed on a licence after differences training when the applicant also complies with one of the following conditions:
 - having already endorsed on the licence the aircraft type rating from which the differences are being identified, or
 - having completed the type training requirements for the aircraft from which the differences are being identified.

Textual Amendments

- F71** Word in Annex 3 Appendix 3 point 1(a)(i) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **278(4)(a)(i)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), **12**); 2020 c. 1, **Sch. 5 para. 1(1)**
- F72** Word in Annex 3 Appendix 3 point 1(b)(i) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **278(4)(a)(i)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), **12**); 2020 c. 1, **Sch. 5 para. 1(1)**
- F73** Word in Annex 3 Appendix 3 point 1(c)(i) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **278(4)(a)(ii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), **12**); 2020 c. 1, **Sch. 5 para. 1(1)**

2. Aircraft type training levels

The three levels listed below define the objectives, the depth of training and the level of knowledge that the training is intended to achieve.

- *Level 1: A brief overview of the airframe, systems and powerplant as outlined in the Systems Description Section of the Aircraft Maintenance Manual/Instructions for Continued Airworthiness.*

Course objectives: Upon completion of Level 1 training, the student will be able to:

- (a) provide a simple description of the whole subject, using common words and examples, using typical terms and identify safety precautions related to the airframe, its systems and powerplant;
 - (b) identify aircraft manuals, maintenance practices important to the airframe, its systems and powerplant;
 - (c) define the general layout of the aircraft's major systems;
 - (d) define the general layout and characteristics of the powerplant;
 - (e) identify special tooling and test equipment used with the aircraft.
- *Level 2: Basic system overview of controls, indicators, principal components, including their location and purpose, servicing and minor troubleshooting. General knowledge of the theoretical and practical aspects of the subject.*

Course objectives: In addition to the information contained in the Level 1 training, at the completion of Level 2 training, the student will be able to:

- (a) understand the theoretical fundamentals; apply knowledge in a practical manner using detailed procedures;

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- (b) recall the safety precautions to be observed when working on or near the aircraft, powerplant and systems;
- (c) describe systems and aircraft handling particularly access, power availability and sources;
- (d) identify the locations of the principal components;
- (e) explain the normal functioning of each major system, including terminology and nomenclature;
- (f) perform the procedures for servicing associated with the aircraft for the following systems: Fuel, Power Plants, Hydraulics, Landing Gear, Water/Waste, and Oxygen;
- (g) demonstrate proficiency in use of crew reports and on-board reporting systems (minor troubleshooting) and determine aircraft airworthiness per the MEL/CDL;
- (h) demonstrate the use, interpretation and application of appropriate documentation including instructions for continued airworthiness, maintenance manual, illustrated parts catalogue, etc.

— *Level 3: Detailed description, operation, component location, removal/installation and bite and troubleshooting procedures to maintenance manual level.*

Course objectives: In addition to the information contained in Level 1 and Level 2 training, at the completion of Level 3 training, the student will be able to:

- (a) demonstrate a theoretical knowledge of aircraft systems and structures and interrelationships with other systems, provide a detailed description of the subject using theoretical fundamentals and specific examples and to interpret results from various sources and measurements and apply corrective action where appropriate;
- (b) perform system, powerplant, component and functional checks as specified in the aircraft maintenance manual;
- (c) demonstrate the use, interpret and apply appropriate documentation including structural repair manual, troubleshooting manual, etc.;
- (d) correlate information for the purpose of making decisions in respect of fault diagnosis and rectification to maintenance manual level;
- (e) describe procedures for replacement of components unique to aircraft type.

3. Aircraft type training standard

Although aircraft type training includes both theoretical and practical elements, courses can be approved for the theoretical element, the practical element or for a combination of both.

3.1. Theoretical element

(a) Objective:

On completion of a theoretical training course the student shall be able to demonstrate, to the levels identified in the Appendix III syllabus, the detailed theoretical knowledge of the aircraft's applicable systems, structure, operations, maintenance, repair, and troubleshooting according to approved maintenance data. The student shall be able to

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demonstrate the use of manuals and approved procedures, including the knowledge of relevant inspections and limitations.

(b) Level of training:

Training levels are those levels defined in point 2 above.

After the first type course for category C certifying staff all subsequent courses need only be to level 1.

During a level 3 theoretical training, level 1 and 2 training material may be used to teach the full scope of the chapter if required. However, during the training the majority of the course material and training time shall be at the higher level.

(c) Duration:

The theoretical training minimum tuition hours are contained in the following table:

Category	Hours
<i>Aeroplanes with a maximum take-off mass above 30 000 kg:</i>	
B1.1	150
B1.2	120
B2	100
C	30
<i>Aeroplanes with a maximum take-off mass equal or less than 30 000 kg and above 5 700 kg:</i>	
B1.1	120
B1.2	100
B2	100
C	25
<i>Aeroplanes with a maximum take-off mass of 5 700 kg and below^a</i>	
B1.1	80
B1.2	60
B2	60
C	15
<i>Helicopters^b</i>	
B1.3	120
B1.4	100
B2	100
a	[^{F4} For non-pressurised piston engine aeroplanes below 2 000 kg MTOM, the minimum duration can be reduced by 50 %.
b	For helicopters in Group 2 (as defined in point 66.A.5), the minimum duration can be reduced by 30 %.]

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C	25
a	[^{F4} For non-pressurised piston engine aeroplanes below 2 000 kg MTOM, the minimum duration can be reduced by 50 %.
b	For helicopters in Group 2 (as defined in point 66.A.5), the minimum duration can be reduced by 30 %.]

For the purpose of the table above, a tuition hour means 60 minutes of teaching and exclude any breaks, examination, revision, preparation and aircraft visit.

These hours apply only to theoretical courses for complete aircraft/engine combinations according to the type rating as defined by the [^{F74}CAA].

(d) Justification of course duration:

Training courses carried out in a maintenance training organisation approved in accordance with Annex IV (Part-147) and courses directly approved by the [^{F75}CAA] shall justify their hour duration and the coverage of the full syllabus by a training needs analysis based on:

- the design of the aircraft type, its maintenance needs and the types of operation,
- detailed analysis of applicable chapters — see contents table in point 3.1(e) below,
- detailed competency analysis showing that the objectives as stated in point 3.1(a) above are fully met.

Where the training needs analysis shows that more hours are needed, course lengths shall be longer than the minimum specified in the table.

Similarly, tuition hours of differences courses or other training course combinations (such as combined B1/B2 courses), and in cases of theoretical type training courses below the figures given in point 3.1(c) above, these shall be justified to the [^{F75}CAA] by the training needs analysis as described above.

In addition, the course must describe and justify the following:

- The minimum attendance required to the trainee, in order to meet the objectives of the course.
- The maximum number of hours of training per day, taking into account pedagogical and human factors principles.

If the minimum attendance required is not met, the certificate of recognition shall not be issued. Additional training may be provided by the training organisation in order to meet the minimum attendance time.

(e) Content:

As a minimum, the elements in the Syllabus below that are specific to the aircraft type shall be covered. Additional elements introduced due to type variations, technological changes, etc. shall also be included.

The training syllabus shall be focused on mechanical and electrical aspects for B1 personnel, and electrical and avionic aspects for B2.

Level	Helicopters turbine	Aeroplanes piston	Helicopters turbine	Helicopters piston	Avionics
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Licence category.	B1	C	B1	C	B1	C	B1	C	B2
Introduction module:									
05	1 Time limits/ maintenance checks	1	1	1	1	1	1	1	1
06	1 Dimensions/ Areas (MTOM, etc.)	1	1	1	1	1	1	1	1
07	1 Lifting and Shoring	1	1	1	1	1	1	1	1
08	1 Levelling and weighing	1	1	1	1	1	1	1	1
09	1 Towing and taxiing	1	1	1	1	1	1	1	1
10	1 Parking/ mooring, Storing and Return to Service	1	1	1	1	1	1	1	1
11	1 Placards and Markings	1	1	1	1	1	1	1	1
12	1 Servicing	1	1	1	1	1	1	1	1
20	1 Standard practices — only type particular	1	1	1	1	1	1	1	1
Helicopters									
18	— Vibration and	—	—	—	3	1	3	1	—

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	Noise Analysis (Blade tracking)								
60	Standard Practices Rotor	—	—	—	3	1	3	1	—
62	Rotors	—	—	—	3	1	3	1	1
62A	Rotors Monitoring and indicating	—	—	—	3	1	3	1	3
63	Rotor Drives	—	—	—	3	1	3	1	1
63A	Rotor Drives Monitoring and indicating	—	—	—	3	1	3	1	3
64	Tail Rotor	—	—	—	3	1	3	1	1
64A	Tail rotor Monitoring and indicating	—	—	—	3	1	3	1	3
65	Tail Rotor Drive	—	—	—	3	1	3	1	1
65A	Tail Rotor Drive Monitoring and indicating	—	—	—	3	1	3	1	3
66	Folding Blades/ Pylon	—	—	—	3	1	3	1	—

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67	Rotors Flight Control	—	—	—	3	1	3	1	—
53	Airframe Structure (Helicopter)	—	—	—	3	1	3	1	—
25	Emergency Flotation Equipment	—	—	—	3	1	3	1	1

Airframe structures

51	³ Standard practices and structures (damage classification, assessment and repair)	¹	3	1	—	—	—	—	1
53	³ Fuselage	¹	3	1	—	—	—	—	1
54	³ Nacelles/ Pylons	¹	3	1	—	—	—	—	1
55	³ Stabilisers	¹	3	1	—	—	—	—	1
56	³ Windows	¹	3	1	—	—	—	—	1
57	³ Wings	¹	3	1	—	—	—	—	1
27A	³ Flight Control Surfaces (All)	¹	3	1	—	—	—	—	1
52	³ Doors	¹	3	1	—	—	—	—	1
Zonal and Station Identification Systems.	¹	¹	1	1	1	1	1	1	1

Airframe systems:

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21	3 Air Conditioning	1	3	1	3	1	3	1	3
21A	3 Air Supply	1	3	1	[F43]	[F41]	3	1	2
21B	3 Pressurisation	1	3	1	3	1	3	1	3
21C	3 Safety and Warning Devices	1	3	1	3	1	3	1	3
22	2 Autoflight	1	2	1	2	1	2	1	3
23	2 Communications	1	2	1	2	1	2	1	3
24	3 Electrical Power	1	3	1	3	1	3	1	3
25	3 Equipment and Furnishings	1	3	1	3	1	3	1	1
25A	1 Electronic Equipment including emergency equipment	1	1	1	1	1	1	1	3
26	3 Fire Protection	1	3	1	3	1	3	1	3
27	3 Flight Controls	1	3	1	3	1	3	1	2
27A	3 Sys. Operation: Electrical/ Fly- by- Wire	1	—	—	—	—	—	—	3
28	3 Fuel Systems	1	3	1	3	1	3	1	2
28A	3 Fuel Systems — Monitoring	1	3	1	3	1	3	1	3

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		and indicating							
29	3	1 Hydraulic Power	3	1	3	1	3	1	2
29A	3	1 Hydraulic Power — Monitoring and indicating	3	1	3	1	3	1	3
30	3	1 Ice and Rain Protection	3	1	3	1	3	1	3
31	3	1 Indicating/ Recording Systems	3	1	3	1	3	1	3
31A	3	1 Instrument Systems	3	1	3	1	[^{F4} 3]	[^{F4} 1]	3
32	3	1 Landing Gear	3	1	3	1	3	1	2
32A	3	1 Landing Gear — Monitoring and indicating	3	1	3	1	3	1	3
33	3	1 Lights	3	1	3	1	3	1	3
34	2	1 Navigation	2	1	2	1	2	1	3
35	3	1 Oxygen	3	1	—	—	—	—	2
36	3	1 Pneumatic	3	1	3	1	3	1	2
36A	3	1 Pneumatic — Monitoring and indicating	3	1	3	1	3	1	3
37	3	1 Vacuum	3	1	3	1	3	1	2
38	3	1 Water/ Waste	3	1	—	—	—	—	2

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41	³ Water Ballast	1	3	1	—	—	—	—	1
42	² Integrated modular avionics	1	2	1	2	1	2	1	3
44	² Cabin Systems	1	2	1	2	1	2	1	3
45	³ On-Board Maintenance System (or covered in 31)	1	3	1	3	1	—	—	3
46	² Information Systems	1	2	1	2	1	2	1	3
50	³ Cargo and Accessory Compartments	1	3	1	3	1	3	1	1
Turbine Engine									
70	³ Standard Practices — Engines,	1	—	—	3	1	—	—	1
70A	³ constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems).	1	—	—	3	1	—	—	1

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70B	3 Engine Performance	1	—	—	3	1	—	—	1
71	3 Powerplant	1	—	—	3	1	—	—	1
72	3 Engine Turbine/ Turbo Prop/ Ducted Fan/ Unducted fan	1	—	—	3	1	—	—	1
73	3 Engine Fuel and Control	1	—	—	3	1	—	—	1
75	3 Air	1	—	—	3	1	—	—	1
76	3 Engine controls	1	—	—	3	1	—	—	1
78	3 Exhaust	1	—	—	3	1	—	—	1
79	3 Oil	1	—	—	3	1	—	—	1
80	3 Starting	1	—	—	3	1	—	—	1
82	3 Water Injections	1	—	—	3	1	—	—	1
83	3 Accessory Gear Boxes	1	—	—	3	1	—	—	1
84	3 Propulsion Augmentation	1	—	—	3	1	—	—	1
73A	3 FADEC	1	—	—	3	1	—	—	3
74	3 Ignition	1	—	—	3	1	—	—	3
77	3 Engine Indicating Systems	1	—	—	3	1	—	—	3

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49	3	1	—	—	—	—	—	—	2
	Auxiliary Power Units (APUs)								
Piston Engine									
70	—	—	3	1	—	—	3	1	1
	Standard Practices — Engines								
70A	—	—	3	1	—	—	3	1	1
	Constructional arrangement and operation (Installation, Carburettors, Fuel injection systems, Induction, Exhaust and Cooling Systems, Supercharging/Turbocharging, Lubrication Systems).								
70B	—	—	3	1	—	—	3	1	1
	Engine Performance								
71	—	—	3	1	—	—	3	1	1
	Powerplant								
73	—	—	3	1	—	—	3	1	1
	Engine Fuel and Control								
76	—	—	3	1	—	—	3	1	1
	Engine Control								
79	—	—	3	1	—	—	3	1	1
	Oil								
80	—	—	3	1	—	—	3	1	1
	Starting								
81	—	—	3	1	—	—	3	1	1
	Turbines								

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

82	Water Injections		3	1	—	—	3	1	1
83	Accessory Gear Boxes		3	1	—	—	3	1	1
84	Propulsion Augmentation		3	1	—	—	3	1	1
73A	FADEC		3	1	—	—	3	1	3
74	Ignition		3	1	—	—	3	1	3
77	Engine Indication Systems		3	1	—	—	3	1	3
Propellers									
60A	Standard Practices — Propeller	3	1	3	1	—	—	—	1
61	Propellers/ Propulsion	3	1	3	1	—	—	—	1
61A	Propeller Construction	3	1	3	1	—	—	—	—
61B	Propeller Pitch Control	3	1	3	1	—	—	—	—
61C	Propeller Synchronising	3	1	3	1	—	—	—	1
61D	Propeller Electronic control	2	1	2	1	—	—	—	3
61E	Propeller Ice Protection	3	1	3	1	—	—	—	—
61F	Propeller Maintenance	3	1	3	1	—	—	—	1

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

	(Blade tracking)										
60	X/X — Standard Practices Rotor — only type specific	X	—	—	—	—	X	—	—	—	—
62	X/— — Rotors	X	X	—	X	—	—	—	—	—	—
62A	X/X X — Rotors — Monitoring and indicating	X	X	X	X	—	—	X	—	X	—
63	X/— X Rotor Drives	—	—	—	X	—	—	—	—	—	—
63A	X/X X Rotor Drives — Monitoring and indicating	—	X	X	X	—	—	X	—	X	—
64	X/— — Tail Rotor	X	—	—	X	—	—	—	—	—	—
64A	X/X X Tail rotor - Monitoring and indicating	—	X	X	X	—	—	X	—	X	—
65	X/— X Tail Rotor Drive	—	—	—	X	—	—	—	—	—	—
65A	X/X X Tail Rotor Drive — Monitoring and indicating	—	X	X	X	—	—	X	—	X	—
66	X/— X Folding Blades/ Pylon	X	—	—	X	—	—	—	—	—	—

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

67	X/—	X Rotors Flight Control	X	—	X	X	—	—	—	—	—
53		Airframe Structure (Helicopter)									
		Note: covered under Airframe structures									
25	X/X	X Emergency Flotation Equipment	X	X	X	X	X	X	—	—	—

**Airframe
structures:**

51		Standard Practices and Structures (damage classification, assessment and repair)									
53	X/—	— Fuselage	—	—	—	X	—	—	—	—	—
54	X/—	— Nacelles/ Pylons	—	—	—	—	—	—	—	—	—
55	X/—	— Stabilisers	—	—	—	—	—	—	—	—	—
56	X/—	— Windows	—	—	—	X	—	—	—	—	—
57	X/—	— Wings	—	—	—	—	—	—	—	—	—
27A	X/—	— Flight Control Surfaces	—	—	—	X	—	—	—	—	—
52	X/X	X Doors	X	—	—	—	—	X	—	—	—

**Airframe
systems:**

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

		and indicating									
29	X/X	X Hydraulic Power	X	X	X	X	X	X	—	X	—
29A	X/X	X Hydraulic Power — Monitoring and indicating	—	X	X	X	X	—	X	X	X
30	X/X	X Ice and Rain Protection	X	—	X	X	X	X	—	X	X
31	X/X	X Indicating/ Recording Systems	X	X	X	X	X	X	X	X	X
31A	X/X	X Instrument Systems	X	X	X	X	X	X	X	X	X
32	X/X	X Landing Gear	X	X	X	X	X	X	X	X	—
32A	X/X	X Landing Gear — Monitoring and indicating	—	X	X	X	X	—	X	X	X
33	X/X	X Lights	X	—	X	—	X	X	X	X	—
34	X/X	— Navigation	X	—	X	—	X	X	X	X	X
35	X/—	X Oxygen	X	X	—	—	X	X	—	—	—
36	X/—	X Pneumatic	—	X	X	X	X	—	X	X	X
36A	X/X	X Pneumatic Monitoring and indicating	X	X	X	X	X	X	X	X	X
37	X/—	X Vacuum	—	X	X	X	—	—	—	—	—
38	X/—	X Water/ Waste	X	—	—	—	X	X	—	—	—

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

		and Control									
73A	X/X	X FADEC Systems	—	X	X	X	X	X	X	X	X
74	X/X	X Ignition	—	—	—	—	X	—	—	—	—
76	X/—	X Engine Controls	—	—	—	X	—	—	—	—	—
77	X/X	X Engine Indicating	—	—	X	X	X	—	—	X	X
78	X/—	X Exhaust	—	—	X	X	—	—	—	—	—
79	X/—	— Oil	X	X	—	—	—	—	—	—	—
80	X/—	X Starting	—	—	X	X	—	—	—	—	—
81	X/—	X Turbines	X	X	—	X	—	—	—	—	—
82	X/—	X Water Injection	—	—	—	—	—	—	—	—	—
83	X/—	— Accessory Gearboxes	X	X	—	—	—	—	—	—	—
84	X/—	X Propulsion Augmentation	—	—	—	—	—	—	—	—	—
Propellers:											
60A	—	Standard Practices Propeller	—	X	—	—	—	—	—	—	—
61	X/X	X Propellers/ Propulsion	X	—	X	X	—	—	—	—	—
61A	X/X	— Propeller Construction	X	—	—	—	—	—	—	—	—
61B	X/—	X Propeller Pitch Control	—	X	X	X	—	—	—	—	—
61C	X/—	X Propeller Synchronising	—	—	—	X	—	—	—	X	—

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

61D	X/X	X Propeller Electronic control	X	X	X	X	X	X	X	X	X	X
61E	X/—	X Propeller Ice Protection	—	X	X	X	—	—	—	—	—	—
61F	X/X	X Propeller Maintenance	X	X	X	X	X	X	X	X	X	X

4. Type training examination and assessment standard

4.1. Theoretical element examination standard

After the theoretical portion of the aircraft type training has been completed, a written examination shall be performed, which shall comply with the following:

- (a) Format of the examination is of the multi-choice type. Each multi-choice question shall have 3 alternative answers of which only one shall be the correct answer. The total time is based on the total number of questions and the time for answering is based upon a nominal average of 90 seconds per question.
- (b) The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length.
- (c) In numerical questions, the incorrect answers shall correspond to procedural errors such as the use of incorrect sense (+ versus -) or incorrect measurement units. They shall not be mere random numbers.
- (d) The level of examination for each chapter⁽¹⁾ shall be the one defined in point 2 ‘Aircraft type training levels’. However, the use of a limited number of questions at a lower level is acceptable.
- (e) The examination shall be of the closed book type. No reference material is permitted. An exception will be made for the case of examining a B1 or B2 candidate's ability to interpret technical documents.
- (f) The number of questions shall be at least 1 question per hour of instruction. The number of questions for each chapter and level shall be proportionate to:
 - the effective training hours spent teaching at that chapter and level,
 - the learning objectives as given by the training needs analysis.

The [F77CAA] will assess the number and the level of the questions when approving the course.

- (g) The minimum examination pass mark is 75 %. When the type training examination is split in several examinations, each examination shall be passed with at least a 75 % mark. In order to be possible to achieve exactly a 75 % pass mark, the number of questions in the examination shall be a multiple of 4.
- (h) Penalty marking (negative points for failed questions) is not to be used.

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

- (i) End of module phase examinations cannot be used as part of the final examination unless they contain the correct number and level of questions required.

Textual Amendments

F77 Word in Annex 3 Appendix 3 point 4.1(f) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **278(4)(e)** (with Sch. 3) (as amended by [S.I. 2019/1098](#), regs. 1(3), **12**); 2020 c. 1, **Sch. 5 para. 1(1)**

4.2. Practical element assessment standard

After the practical element of the aircraft type training has been completed, an assessment must be performed, which must comply with the following:

- (a) The assessment shall be performed by designated assessors appropriately qualified.
- (b) The assessment shall evaluate the knowledge and skills of the trainee.

5. Type examination standard

Type examination shall be conducted by training organisations appropriately approved under Part-147 or by the [^{F78}CAA].

Textual Amendments

F78 Word in Annex 3 Appendix 3 point 5 substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **278(4)(d)** (with Sch. 3) (as amended by [S.I. 2019/1098](#), regs. 1(3), **12**); 2020 c. 1, **Sch. 5 para. 1(1)**

The examination shall be oral, written or practical assessment based, or a combination thereof and it shall comply with the following requirements:

- (a) Oral examination questions shall be open.
- (b) Written examination questions shall be essay type or multi-choice questions.
- (c) Practical assessment shall determine a person's competence to perform a task.
- (d) Examinations shall be on a sample of chapters⁽²⁾ drawn from point 3 type training/examination syllabus, at the indicated level.
- (e) The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All of the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length.
- (f) In numerical questions, the incorrect answers shall correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they shall not be mere random numbers.
- (g) The examination shall ensure that the following objectives are met:
1. Properly discuss with confidence the aircraft and its systems.
 2. Ensure safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example troubleshooting,

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

- repairs, adjustments, replacements, rigging and functional checks such as engine run, etc., if required.
3. Correctly use all technical literature and documentation for the aircraft.
 4. Correctly use specialist/special tooling and test equipment, perform removal and replacement of components and modules unique to type, including any on-wing maintenance activity
- (h) The following conditions apply to the examination:
1. The maximum number of consecutive attempts is three. Further sets of three attempts are allowed with a 1 year waiting period between sets. A waiting period of 30 days is required after the first failed attempt within one set, and a waiting period of 60 days is required after the second failed attempt.

The applicant shall confirm in writing to the maintenance training organisation or the [F78CAA] to which they apply for an examination, the number and dates of attempts during the last year and the maintenance training organisation or the [F78CAA] where these attempts took place. The maintenance training organisation or the [F78CAA] is responsible for checking the number of attempts within the applicable timeframes.
 2. The type examination shall be passed and the required practical experience shall be completed within the 3 years preceding the application for the rating endorsement on the aircraft maintenance licence.
 3. Type examination shall be performed with at least one examiner present. The examiner(s) shall not have been involved in the applicant's training.
- (i) A written and signed report shall be made by the examiner(s) to explain why the candidate has passed or failed.

6. On the Job Training

On the Job Training (OJT) shall be approved by the [F79CAA].

Textual Amendments

F79 Word in Annex 3 Appendix 3 point 6 substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **278(4)(e)(i)** (with Sch. 3) (as amended by [S.I. 2019/1098](#), regs. 1(3), **12**); 2020 c. 1, **Sch. 5 para. 1(1)**)

It shall be conducted at and under the control of a maintenance organisation appropriately approved for the maintenance of the particular aircraft type and shall be assessed by designated assessors appropriately qualified.

It shall have been started and completed within the 3 years preceding the application for a type rating endorsement.

- (a) Objective:

The objective of OJT is to gain the required competence and experience in performing safe maintenance.
- (b) Content:

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

OJT shall cover a cross section of tasks acceptable to the [F80 CAA]. The OJT tasks to be completed shall be representative of the aircraft and systems both in complexity and in the technical input required to complete that task. While relatively simple tasks may be included, other more complex maintenance tasks shall also be incorporated and undertaken as appropriate to the aircraft type.

Each task shall be signed off by the student and countersigned by a designated supervisor. The tasks listed shall refer to an actual job card/work sheet, etc.

The final assessment of the completed OJT is mandatory and shall be performed by a designated assessor appropriately qualified.

The following data shall be addressed on the OJT worksheets/logbook:

1. Name of Trainee;
2. Date of Birth;
3. Approved Maintenance Organisation;
4. Location;
5. Name of supervisor(s) and assessor, (including licence number if applicable);
6. Date of task completion;
7. Description of task and job card/work order/tech log, etc.;
8. Aircraft type and aircraft registration;
9. Aircraft rating applied for.

Textual Amendments

F80 Word in Annex 3 Appendix 3 point 6(b) substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **278(4)(e)(ii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), **12**); 2020 c. 1, **Sch. 5 para. 1(1)**

In order to facilitate the verification by the [F81 CAA], demonstration of the OJT shall consist of (i) detailed worksheets/logbook and (ii) a compliance report demonstrating how the OJT meets the requirement of this Part.

Textual Amendments

F81 Word in Annex 3 Appendix 3 point 6 substituted (31.12.2020) by [The Aviation Safety \(Amendment etc.\) \(EU Exit\) Regulations 2019 \(S.I. 2019/645\)](#), regs. 1, **278(4)(e)(iii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), **12**); 2020 c. 1, **Sch. 5 para. 1(1)**

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

[^{F4}Appendix IV

Experience requirements for extending a Part-66 aircraft maintenance licence

The table below shows the experience requirements for adding a new category or subcategory to an existing Part-66 licence.

The experience shall be practical maintenance experience in operating aircraft in the subcategory relevant to the application.

The experience requirement will be reduced by 50 % if the applicant has completed an approved Part-147 course relevant to the subcategory.

To	From	A1	A2	A3	A4	B1.1	B1.2	B1.3	B1.4	B2	B2L	B3
A1	—	6 months	6 months	6 months	2 years	6 months	2 years	1 year	2 years	1 year	6 months	
A2	6 months	—	6 months	6 months	2 years	6 months	2 years	1 year	2 years	1 year	6 months	
A3	6 months	6 months	—	6 months	2 years	1 year	2 years	6 months	2 years	1 year	1 year	
A4	6 months	6 months	6 months	—	2 years	1 year	2 years	6 months	2 years	1 year	1 year	
B1.1	None	6 months	6 months	6 months	—	6 months	6 months	6 months	1 year	1 year	6 months	
B1.2	6 months	None	6 months	6 months	2 years	—	2 years	6 months	2 years	1 year	None	
B1.3	6 months	6 months	None	6 months	6 months	6 months	—	6 months	1 year	1 year	6 months	
B1.4	6 months	6 months	6 months	None	2 years	6 months	2 years	—	2 years	1 year	6 months	
B2	6 months	6 months	6 months	6 months	1 year	1 year	1 year	1 year	—	—	1 year	
B2L	6 months	6 months	6 months	6 months	1 year	1 year	1 year	1 year	1 year	—	1 year	
B3	6 months	None	6 months	6 months	2 years	6 months	2 years	1 year	2 years	1 year	—]	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

[^{F4}Appendix V^{F82F83F84F85} **Application Form — [^{F86}CAA Form 19]**

1. This Appendix contains an example of the form used for applying for the aircraft maintenance licence referred to in Annex III (Part-66).
2. The [^{F87}CAA] may modify the [^{F88}CAA Form 19] only to include additional information necessary to support the case where the national requirements permit or require the aircraft maintenance licence issued in accordance with Annex III (Part-66) to be used outside the requirements of Annex I (Part-M) and Annex II (Part-145).]

Textual Amendments

- F87** Word in Annex 3 Appendix 5 point 2 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **278(5)(a)(ii)(aa)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)
- F88** Words in Annex 3 Appendix 5 point 2 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **278(5)(a)(ii)(bb)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

APPLICATION FOR INITIAL/AMENDMENT OF/RENEWAL OF PART-66 AIRCRAFT MAINTENANCE LICENCE (AML)	EASA FORM 19																																																																																																				
APPLICANT'S DETAILS: Name: Address: Tel: E-mail: Nationality: Date and Place of Birth:																																																																																																					
PART-66 AML DETAILS (if applicable): Licence No: Date of Issue:																																																																																																					
EMPLOYER'S DETAILS: Name: Address: Maintenance Organisation Approval Reference: Tel: Fax:																																																																																																					
APPLICATION FOR: (Tick relevant boxes) Initial AML <input type="checkbox"/> Amendment of AML <input type="checkbox"/> Renewal of AML <input type="checkbox"/> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding: 2px;">(Sub)categories</th> <th style="text-align: center; padding: 2px;">A</th> <th style="text-align: center; padding: 2px;">B1</th> <th style="text-align: center; padding: 2px;">B2</th> <th style="text-align: center; padding: 2px;">B2L</th> <th style="text-align: center; padding: 2px;">B3</th> <th style="text-align: center; padding: 2px;">C</th> <th style="text-align: center; padding: 2px;">L (see below)</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">Aeroplane Turbine</td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"><input type="checkbox"/></td> <td style="text-align: center; padding: 2px;"></td> <td style="text-align: center; padding: 2px;"></td> <td style="text-align: center; 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I wish to apply for initial/amendment of/renewal of Part-66 AML, as indicated, and confirm that the information contained in this form was correct at the time of application.

I herewith confirm that:

1. I am not holding any Part-66 AML issued in another Member State;
2. I have not applied for any Part-66 AML in another Member State; and
3. I never had a Part-66 AML issued in another Member State which was revoked or suspended in any other Member State.

I also understand that any incorrect information could disqualify me from holding a Part-66 AML.

Signed: Name:

Date:

I wish to claim the following credits (if applicable):

.....
.....
.....

Experience credits for Part-147 training

.....
.....
.....

Examination credits for equivalent exam certificates

.....
.....
.....

Please enclose all relevant certificates

Recommendation (if applicable): It is hereby certified that the applicant has met the relevant Part-66 maintenance knowledge and experience requirements and it is recommended that the competent authority grants or endorses the Part-66 AML.

Signed: Name:

Position: Date:

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

[^{F15}][^{F4}Appendix VI

F89F90F91F92F93F94F95F96 Aircraft Maintenance Licence referred to in Annex III (Part-66) – [^{F97}CAA Form 26]]

- [^{F12}1. An example of the aircraft maintenance licence referred to in Annex III (Part-66) can be found on the following pages.
2. The document shall be printed in the standardised form shown but may be reduced in size to allow it being generated by computer. When the size is reduced, care shall be taken to ensure that sufficient space is available in those places where official seals or stamps are required. Computer-generated documents need not have all the boxes incorporated when any such box remains blank, so long as the document can clearly be recognised as an aircraft maintenance licence issued in accordance with Annex III (Part-66).
3. [^{F98}The document must be completed in English.]

Textual Amendments

F98 Annex 3 Appendix 6 point 3 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **278(6)(a)(ii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

4. Each licence holder shall have a unique licence holder number, established on the basis of a national identifier and an alpha-numeric designator.
5. The document may have the pages in a different order to the one of this example and needs not have some or any divider lines as long as the information contained is positioned in such a manner that each page lay-out can clearly be identified with the format of the example of the aircraft maintenance licence contained herein.
6. The document shall be prepared by the [^{F99}CAA]. However, it may also be prepared by any maintenance organisation approved in accordance with Annex II (Part-145), where the [^{F99}CAA] agrees to this and the preparation takes place in accordance with a procedure laid down in the maintenance organisation exposition referred to in point 145.A.70 of Annex II (Part-145). In all cases, the [^{F99}CAA] shall issue the document.

Textual Amendments

F99 Word in Annex 3 Appendix 6 point 6 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, **278(6)(a)(iii)** (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

7. The preparation of any change to an existing aircraft maintenance licence shall be carried out by the [^{F100}CAA]. However, it may also be prepared by any maintenance organisation approved in accordance with Annex II (Part- 145), where the [^{F100}CAA] agrees to this and the preparation takes place in accordance with a procedure laid down in the maintenance organisation exposition referred to in point 145.A.70 of Annex II (Part-145). In all cases, the [^{F100}CAA] shall change the document.

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

Textual Amendments

F100 Word in Annex 3 Appendix 6 point 7 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 278(6)(a)(iii) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

8. The holder of the aircraft maintenance licence shall keep it in good condition and shall ensure that no unauthorised entries are made. Failure to comply with this rule may invalidate the license or lead to the holder not being permitted to hold any certification privilege. It may also result in prosecution under national law.

9. **F101** ...

Textual Amendments

F101 Annex 3 Appendix 6 point 9 omitted (31.12.2020) by virtue of The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 278(6)(a)(iv) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

10. The Annex to [F102CAA Form 26] is optional and may only be used to include national privileges, where such privileges are covered by national law outside the scope of Annex III (Part-66).

Textual Amendments

F102 Words in Annex 3 Appendix 6 point 10 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 278(6)(a)(v) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

11. With regard to the aircraft type rating page of the aircraft maintenance licence, the [F103CAA] may decide not to issue this page until the first aircraft type rating needs to be endorsed and may need to issue more than one aircraft type rating page depending on the number of type ratings to be listed.

Textual Amendments

F103 Word in Annex 3 Appendix 6 point 11 substituted (31.12.2020) by The Aviation Safety (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/645), regs. 1, 278(6)(a)(vi) (with Sch. 3) (as amended by S.I. 2019/1098, regs. 1(3), 12); 2020 c. 1, Sch. 5 para. 1(1)

12. Notwithstanding point 11, each page issued shall be in the format of this example and contain the specified information for that page.
13. The aircraft maintenance licence shall clearly indicate that the limitations are exclusions from the certification privileges. If there are no limitations applicable, the LIMITATIONS page shall state ‘ No limitations ’ .
14. Where a pre-printer format is used for issuing the aircraft maintenance licence, any category, subcategory or type rating box which does not contain a rating entry shall be marked to show that the rating is not held.]]

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

I.
EUROPEAN UNION (*)
[STATE]
[AUTHORITY NAME & LOGO]

II.
Part-66
AIRCRAFT MAINTENANCE
LICENCE

III.
Licence No [MEMBER STATE
CODE].66.[XXXX]

EASA FORM 26 Issue 5

IVa. Full name of holder:

IVb. Date and place of birth:

V. Address of holder:

VI. Nationality of holder:

VII. Signature of holder:

III. Licence No:

VIII. CONDITIONS:

This licence shall be signed by the holder and be accompanied by an identity document containing a photograph of the licence holder.

Endorsement of any categories on the page(s) entitled 'Part-66 CATEGORIES' only, does not permit the holder to issue a certificate of release to service for an aircraft.

This licence, when endorsed with an aircraft rating, meets the intent of ICAO Annex 1.

The privileges of this licence holder are prescribed by Regulation (EU) No 1321/2014 and, in particular, Annex III (Part-66) thereto.

This licence remains valid until the date specified on the limitation page unless previously suspended or revoked.

The privileges of this licence may not be exercised unless in the preceding two-year period, the holder had either six months of maintenance experience in accordance with the privileges granted by the licence, or met the provisions for the issue of the appropriate privileges.

III. Licence No:

IX. Part-66 CATEGORIES

VALIDITY	A	B1	B2	B2L	B3	L	C
Aeroplanes Turbine			n/a	n/a	n/a	n/a	n/a
Aeroplanes Piston			n/a	n/a	n/a	n/a	n/a
Helicopters Turbine			n/a	n/a	n/a	n/a	n/a
Helicopters Piston			n/a	n/a	n/a	n/a	n/a
Avionics	n/a	n/a			n/a	n/a	n/a
Complex motor-powered aircraft	n/a	n/a	n/a	n/a	n/a		
Aircraft other than complex motor-powered aircraft	n/a	n/a	n/a	n/a	n/a		
Sailplanes, powered sailplanes, ELA1 aeroplanes, balloons and airships	n/a	n/a	n/a	n/a			n/a
Piston engine non pressurised aeroplanes of 2 000 kg MTOM and below	n/a	n/a	n/a			n/a	n/a

X. Signature of issuing officer & date:

XI. Seal or stamp of issuing authority:

III. Licence No:

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XII. PART-66 RATINGS		
Aircraft rating/ System ratings	Category/Subcategory	Stamp & Date
III. Licence No:		

XIII. PART-66 LIMITATIONS
Valid until:
III. Licence No:

Annex to EASA FORM 26
XIV. NATIONAL PRIVILEGES outside the scope of Part-66, in accordance with [National Legislation] (Valid only in [Member State])
Official Stamp & Date
III. Licence No:

<p>INTENTIONALLY LEFT BLANK</p>

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

[^{F12}Appendix VII

Basic knowledge requirements for category L aircraft maintenance licence

The definitions of the different levels of knowledge required in this Appendix are the same as those contained in point 1 of Appendix I to Annex III (Part-66).

Subcategories	Modules required for each subcategory (refer to the syllabus table below)
L1C: composite sailplanes	1L, 2L, 3L, 5L, 7L and 12L
L1: sailplanes	1L, 2L, 3L, 4L, 5L, 6L, 7L and 12L
L2C: composite powered sailplanes and composite ELA1 aeroplanes	1L, 2L, 3L, 5L, 7L, 8L and 12L
L2: powered sailplanes and ELA1 aeroplanes	1L, 2L, 3L, 4L, 5L, 6L, 7L, 8L and 12L
L3H: hot-air balloons	1L, 2L, 3L, 9L and 12L
L3G: gas balloons	1L, 2L, 3L, 10L and 12L
L4H: hot-air airships	1L, 2L, 3L, 8L, 9L, 11L and 12L
L4G: ELA2 gas airships	1L, 2L, 3L, 8L, 10L, 11L and 12L
L5: gas airships above ELA2	Basic knowledge requirements for any B1 subcategory plus 8L (for B1.1 and B1.3), 10L, 11L and 12L

TABLE OF CONTENTS:

Module Designation

1L	‘Basic knowledge’
2L	‘Human factors’
3L	‘Aviation legislation’
4L	‘Airframe wooden/metal tube and fabric’
5L	‘Airframe composite’
6L	‘Airframe metal’
7L	‘Airframe general’
8L	‘Power plant’
9L	‘Balloon/Airship hot air’
10L	‘Balloon/Airship gas (free/tethered)’
11L	‘Airships hot air/gas’
12L	‘Radio Com/ELT/Transponder/Instruments’

MODULE 1L — BASIC KNOWLEDGE

	Level
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<p>1L.1 Mathematics</p> <p>Arithmetic</p> <ul style="list-style-type: none"> — Arithmetical terms and signs; — Methods of multiplication and division; — Fractions and decimals; — Factors and multiples; — Weights, measures and conversion factors; — Ratio and proportion; — Averages and percentages; — Areas and volumes, squares, cubes. <p>Algebra</p> <ul style="list-style-type: none"> — Evaluating simple algebraic expressions: addition, subtraction, multiplication and division; — Use of brackets; — Simple algebraic fractions. <p>Geometry</p> <ul style="list-style-type: none"> — Simple geometrical constructions; — Graphical representation: nature and uses of graphs. 	1
<p>1L.2 Physics</p> <p>Matter</p> <ul style="list-style-type: none"> — Nature of matter: the chemical elements; — Chemical compounds; — States: solid, liquid and gaseous; — Changes between states. <p>Mechanics</p> <ul style="list-style-type: none"> — Forces, moments and couples, representation as vectors; — Centre of gravity; — Tension, compression, shear and torsion; — Nature and properties of solids, fluids and gases. <p>Temperature</p> <ul style="list-style-type: none"> — Thermometers and temperature scales: Celsius, Fahrenheit and Kelvin; — Heat definition. 	1
<p>1L.3 Electrics</p> <p>DC Circuits</p> <ul style="list-style-type: none"> — Ohm's law, Kirchoff's voltage and current laws; — Significance of the internal resistance of a supply; — Resistance/resistor; 	1

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—	Resistor colour code, values and tolerances, preferred values, wattage ratings;	
—	Resistors in series and parallel.	
1L.4	<p>Aerodynamics/aerostatics International Standard Atmosphere (ISA), application to aerodynamics and aerostatics.</p> <p>Aerodynamics</p> <ul style="list-style-type: none"> — Airflow around a body; — Boundary layer, laminar and turbulent flow; — Thrust, weight, aerodynamic resultant; — Generation of lift and drag: angle of attack, polar curve, stall. <p>Aerostatics Effect on envelopes, wind effect, altitude and temperature effects.</p>	1
1L.5	<p>Workplace safety and environmental protection</p> <ul style="list-style-type: none"> — Safe working practices and precautions when working with electricity, gases (especially oxygen), oils and chemicals; — Labelling, storage and disposal of hazardous (to safety and environment) materials; — Remedial action in the event of a fire or another accident with one or more hazards, including knowledge of extinguishing agents. 	2

MODULE 2L — HUMAN FACTORS

	Level
2L.1	1
—	General
—	The need to take human factors into account;
—	Incidents attributable to human factors/human error;
—	Murphy's Law.
2L.2.	1
	Human performance and limitations
	Vision, hearing, information processing, attention and perception, memory.
2L.3	1
	Social psychology

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Responsibility, motivation, peer pressure, teamwork.	
2L.4 Factors affecting performance Fitness/health, stress, sleep, fatigue, alcohol, medication, drug abuse.	1
2L.5 Physical environment Working environment (climate, noise, illumination).	1

MODULE 3L — AVIATION LEGISLATION

	Level
3L.1 Regulatory framework — Role of the European Commission, EASA and National Aviation Authorities (NAAs); — Applicable parts of Part-M and Part-66.	1
3L.2 Repairs and modifications — Approval of changes (repairs and modifications); — Standard changes and standard repairs.	2
3L.3 Maintenance data — Airworthiness Directives (ADs), Instructions for Continuing Airworthiness (ICA) (AMM, IPC, etc.); — Flight Manual; — Maintenance records.	2

MODULE 4L — AIRFRAME WOODEN/METAL TUBE AND FABRIC

	Level
4L.1 Airframe wooden/combination of metal tube and fabric — Timber, plywood, adhesives, preservation, power line, properties, machining; — Covering (covering materials, adhesives and finishes, natural and synthetic covering materials and adhesives); — Paint, assembly and repair processes;	2

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—	Recognition of damages from overstressing of wooden/metal-tube and fabric structures;	
—	Deterioration of wood components and coverings;	
—	Crack test (optical procedure, e.g., magnifying glass) of metal components. Corrosion and preventive methods. Health and fire safety protections.	
4L.2	Material	2
—	Types of wood, stability, and machining properties;	
—	Steel and light alloy tubes and fittings, fracture inspections of welded seams;	
—	Plastics (overview, understanding of the properties);	
—	Paints and paint removal;	
—	Glues, adhesives;	
—	Covering materials and technologies (natural and synthetic polymers).	
4L.3	Identifying damage	3
—	Overstress of wood / metal-tubing and fabric structures;	
—	Load transfers;	
—	Fatigue strength and crack testing.	
4L.4	Performance of practical activities	2
—	Locking of pins, screws, castellated nuts, turnbuckles;	
—	Thimble splice;	
—	Nicopress and Talurit repairs;	
—	Repair of coverings;	
—	Repair of transparencies;	
—	Repair exercises (plywood, stringer, handrails, skins);	
—	Aircraft Rigging. Calculation of control surface mass balance and range of movement of the control surfaces, measurement of operating forces;	
—	Performance of 100-hours/annual inspections on a wood or combination of metal-tube and fabric airframe.	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

MODULE 5L — AIRFRAME COMPOSITE

	Level
5L.1 Airframe fibre-reinforced plastic (FRP) <ul style="list-style-type: none"> — Basic principles of FRP construction; — Resins (Epoxy, polyester, phenolic resins, vinyl ester resins); — Reinforcement materials glass, aramide and carbon fibres, features; — Fillers; — Supporting cores (balsa, honeycombs, foamed plastics); — Constructions, load transfers (solid FRP shell, sandwiches); — Identification of damage during overstressing of components; — Procedure for FRP projects (according to Maintenance Organisation Manual) including storage conditions for material. 	2
5L.2 Material <ul style="list-style-type: none"> — Thermosetting plastics, thermoplastic polymers, catalysts; — Understanding properties, machining technologies, detaching, bonding, welding; — Resins for FRP: epoxy resins, polyester resins, vinyl ester resins, phenolic resins; — Reinforcement materials; — From elementary fibre to filaments (release agent, finish), weaving patterns; — Properties of individual reinforcement materials (E-glass fibre, aramide fibre, carbon fibre); — Problem with multiple-material systems, matrix; — Adhesion/cohesion, various behaviours of fibre materials; — Filling materials and pigments; — Technical requirements for filling materials; — Property change of the resin composition through the use of E-glass, micro balloon, aerosols, cotton, minerals, metal powder, organic substances; 	2

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—	Paint assembly and repair technologies;	
—	Support materials;	
—	Honeycombs (paper, FRP, metal), balsa wood, Divinycell (Contizell), development trends.	
5L.3	Assembly of Fibre-Reinforced Composite-Structure Airframes	2
—	Solid shell;	
—	Sandwiches;	
—	Assembly of aerofoils, fuselages, control surfaces.	
5L.4	Identifying Damage	3
—	Behaviour of FRP components in the event of overstressing;	
—	Identifying delaminations, loose bonds;	
—	Bending vibration frequency in aerofoils;	
—	Load transfer;	
—	Frictional connection and positive locking;	
—	Fatigue strength and corrosion of metal parts;	
—	Metal bonding, surface finishing of steel and aluminium components during bonding with FRP.	
5L.5	Mold making	2
—	Plaster molds, mold ceramics;	
—	GFK molds, Gel-coat, reinforcement materials, rigidity problems;	
—	Metal molds;	
—	Male and female molds.	
5L.6	Performance of practical activities	2
—	Locking of pin, screws, castellated nuts, turnbuckles;	
—	Thimble splice;	
—	Nicopress and Talurit repairs;	
—	Repair of coverings;	
—	Repair of solid FRP shells;	
—	Mold fabrication/molding of a component (e.g. fuselage nose, landing gear fairing, wing tip and winglet);	
—	Repair of sandwich shell where interior and exterior layer are damaged;	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

—	Repair of sandwich shell by pressing with a vacuum bag;
—	Transparency repair (PMMA) with one- and two-component adhesive;
—	Bonding of transparency with the canopy frame;
—	Tempering of transparencies and other components;
—	Performance of a repair on a sandwich shell (minor repair less than 20 cm);
—	Aircraft Rigging. Calculation of control surface mass balance and range of movement of the control surfaces, measurement of operating forces;
—	Performance of 100-hour/annual inspections on an FRP airframe.

MODULE 6L — AIRFRAME METAL

	Level
6L.1 Airframe metal	2
— Metallic materials and semi-finished products, machining methods;	
— Fatigue strength and crack test;	
— Assembly of metal-construction components, riveted joints, adhesive joints;	
— Identification of damage to overstressed components, effects of corrosion;	
— Health and fire protection.	
6L.2 Material	2
— Steel and its alloys;	
— Light metals and their light alloys;	
— Rivet materials;	
— Plastics;	
— Colours and paints;	
— Metal adhesives;	
— Types of corrosion;	
— Covering materials and technologies (natural and synthetic).	
6L.3 Identifying damage	3
— Overstressed metal airframes, levelling, measurement of symmetry;	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

—	Load transfers;	
—	Fatigue strength and crack test;	
—	Identifying loose riveted joints.	
6L.4	Assembly of metal- and composite-construction airframes	2
—	Skins;	
—	Frames;	
—	Stringers and longerons;	
—	Frame construction;	
—	Problems in multiple-material systems.	
6L.5	Fasteners	2
—	Classifications of fits and clearances;	
—	Metric and imperial measuring systems;	
—	Oversize bolt.	
6L.6	Performance of practical activities	2
—	Locking of pins, screws, castellated nuts, turnbuckles;	
—	Thimble splice;	
—	Nicopress and Talurit repairs;	
—	Repair of coverings, surface damage, stop drilling techniques;	
—	Repair of transparencies;	
—	Cutting out sheet metals (aluminiums and light alloys, steel and alloys);	
—	Folding bending, edging, beating, smoothening, beading;	
—	Repair riveting of metal airframes according to repair instruction or drawings;	
—	Evaluation of rivet errors;	
—	Aircraft Rigging. Calculation of control surface mass balance and range of movement of the control surfaces, measurement of operating forces;	
—	Performance of 100-hour/annual inspections on a metal airframe.	

MODULE 7L — AIRFRAME GENERAL

		Level
7L.1	Flight control system	3

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

—	Cockpit controls: controls in cockpit, colour markings, knob shapes;	
—	Flight controls surfaces, flaps, air brakes surfaces, controls, hinges, bearings, brackets, push-pull rods, bell cranks, horns, pulleys, cables, chains, tubes, rollers, tracks, jack screws, surfaces, movements, lubrication, stabilisers, balancing of controls;	
—	Combination of controls: flap ailerons, flap air brakes;	
—	Trim systems.	
7L.2	Airframe	2
—	Landing gear: characteristics of landing gears and shock absorber strut, extension, brakes, drum, disks, wheel, tyre, retraction mechanism, electrical retraction, emergency;	
—	Wing to fuselage mounting points, empennage (fin and tail plane) to fuselage mounting points, control surface mounting points;	
—	Permissible maintenance measures;	
—	Towing: towing/lifting equipment/mechanism;	
—	Cabin: seats and safety harness, cabin arrangement, windshields, windows, placards, baggage compartment, cockpit controls, cabin air system, blower;	
—	Water ballast: water reservoirs, lines, valves, drains, vents, tests;	
—	Fuel system: tanks, lines, filters, vents, drains, filling, selector valve, pumps, indication, tests, bonding;	
—	Hydraulics: system layout, accumulators, pressure and power distribution, indication;	
—	Liquid and gas: hydraulic, other fluids, levels, reservoir, lines, valves, filter;	
—	Protections: firewalls, fire protection, lightning strike bonding, turnbuckles, locking devices, dischargers.	
7L.3	Fasteners	2
—	Reliability of pins, rivets, screws;	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

—	Control cables, turnbuckles;	
—	Quick-release couplings (L'Hotellier, SZD, Poland).	
7L.4	Locking equipment	2
—	Admissibility of locking methods, locking pins, spring steel pins, locking wire, stop nuts, paint;	
—	Quick-release couplings.	
7L.5	Weight and balance levelling	2
7L.6	Rescue systems	2
7L.7	On-board modules	2
—	Pitot-static system, vacuum/ dynamic system, hydrostatic test;	
—	Flight instruments: airspeed indicator, altimeter, vertical- speed indicator, connection and functioning, markings;	
—	Arrangement and display, panel, electrical wires;	
—	Gyroscopes, filters, indicating instruments; testing of function;	
—	Magnetic compass: installation and compass swing;	
—	Sailplanes: acoustic vertical- speed indicator, flight recorders, anticollision aid;	
—	Oxygen system.	
7L.8	On-board modules installation and connections	2
—	Flight instruments, mounting requirements (emergency landing conditions as per CS-22);	
—	Electric wiring, power sources, types of storage batteries, electrical parameters, electric generator, circuit breaker, energy balance, earth/ground, connectors, terminals, warnings, fuses, lamps, lightings, switches, voltmeters, ampere meters, electrical gauges.	
7L.9	Piston engine propulsion Interface between power plant and airframe.	2
7L.10	Propeller	2
—	Inspection;	

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—	Replacement;	
—	Balancing.	
7L.11	Retraction system	2
—	Propeller position control;	
—	Engine and/or propeller retraction system.	
7L.12	Physical inspection procedures	2
—	Cleaning, use of lighting and mirrors;	
—	Measuring tools;	
—	Measure of controls deflection;	
—	Torque of screws and bolts;	
—	Wear of bearings;	
—	Inspection equipment;	
—	Calibration of measuring tools.	

MODULE 8L — POWER PLANT

		Level
8L.1	Noise limits	1
—	Explanation of the concept of ‘noise level’;	
—	Noise certificate;	
—	Enhanced sound proofing;	
—	Possible reduction of sound emissions.	
8L.2	Piston engines	2
—	Four-stroke spark ignition engine, air-cooled engine, fluid-cooled engine;	
—	Two-stroke engine;	
—	Rotary-piston engine;	
—	Efficiency and influencing factors (pressure–volume diagram, power curve);	
—	Noise control devices.	
8L.3	Propeller	2
—	Blade, spinner, backplate, accumulator pressure, hub;	
—	Operation of propellers;	
—	Variable-pitch propellers, ground and in-flight adjustable propellers, mechanically, electrically and hydraulically;	
—	Balancing (static, dynamic);	
—	Noise problems.	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

8L.4 Engine control devices — Mechanical control devices; — Electrical control devices; — Tank displays; — Functions, characteristics, typical errors and error indications.	2
8L.5 Hosepipes — Material and machining of fuel and oil hoses; — Control of life limit.	2
8L.6 Accessories — Operation of magneto ignition; — Control of maintenance limits; — Operation of carburettors; — Maintenance instructions on characteristic features; — Electric fuel pumps; — Operation of propeller controls; — Electrically operated propeller control; — Hydraulically operated propeller control.	2
8L.7 Ignition system — Constructions: coil ignition, magneto ignition, and thyristor ignition; — Efficiency of the ignition and preheat system; — Modules of the ignition and preheat system; — Inspection and testing of a spark plug.	2
8L.8 Induction and exhaust systems — Operation and assembly; — Silencers and heater installations; — Nacelles and cowlings; — Inspection and test; — CO emission test.	2
8L.9 Fuels and lubricants — Fuel characteristics; — Labelling, environmentally friendly storage; — Mineral and synthetic lubricating oils and their parameters: labelling and characteristics, application;	2

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—	Environmentally friendly storage and proper disposal of used oil.	
8L.10	Documentation	2
—	Manufacturer documents for the engine and propeller;	
—	Instructions for Continuing Airworthiness (ICA);	
—	Aircraft Flight Manuals (AFMs) and Aircraft Maintenance Manuals (AMMs);	
—	Time Between Overhaul (TBO);	
—	Airworthiness Directives (ADs), technical notes and service bulletins.	
8L.11	Illustrative material	2
—	Cylinder unit with valve;	
—	Carburettor;	
—	High-tension magneto;	
—	Differential-compression tester for cylinders;	
—	Overheated/damaged pistons;	
—	Spark plugs of engines that were operated differently.	
8L.12	Practical experience	2
—	Work safety/accident prevention (handling of fuels and lubricants, start-up of engines);	
—	Rigging-engine control rods and Bowden cables;	
—	Setting of no-load speed;	
—	Checking and setting the ignition point;	
—	Operational test of magnetos;	
—	Checking the ignition system;	
—	Testing and cleaning of spark plugs;	
—	Performance of the engine tasks contained in an aeroplane 100-hour/annual inspection;	
—	Cylinder compression test;	
—	Static test and evaluation of the engine run;	
—	Documentation of maintenance work including replacement of components.	
8L.13	Gas exchange in internal-combustion engines	2
—	Four-stroke reciprocating engine and control units;	

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<ul style="list-style-type: none"> — — — — — — — — — 	<ul style="list-style-type: none"> Energy losses; Ignition timing; Direct flow behaviour of control units; Wankel engine and control units; Two-stroke engine and control units; Scavenging; Scavenging blower; Idle range and power range. 	
8L.14	<ul style="list-style-type: none"> Ignition, combustion and carburation — Ignition; — Spark plugs; — Ignition system; — Combustion process; — Normal combustion; — Efficiency and medium pressure; — Engine knock and octane rating; — Combustion chamber shapes; — Fuel/air mix in the carburettor; — Carburettor principle, carburettor equation; — Simple carburettor; — Problems of the simple carburettor and their solutions; — Carburettor models; — Fuel/air mix during injection; — Mechanically controlled injection; — Electronically controlled injection; — Continuous injection; — Carburettor-injection comparison. 	2
8L.15	<ul style="list-style-type: none"> Flight instruments in aircraft with injection engines — Special flight instruments (injection engine); — Interpretation of indications in a static test; — Interpretation of indications in flight at various flight levels. 	2
8L.16	<ul style="list-style-type: none"> Maintenance of aircraft with injection engines — Documentation, manufacturer documents, etc.; — General maintenance instructions (hourly inspections); — Functional tests; — Ground test run; — Test flight; 	2

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—	Troubleshooting in the event of faults in the injection system and their correction.	
8L.17	Workplace safety and safety provisions Work safety and safety provisions for work on injection systems.	2
8L.18	Visual aids: — Carburettor; — Components of injection system; — Aircraft with injection engine; — Tool for work on injection systems.	2
8L.19	Electrical propulsion — Energy system, accumulators, installation; — Electrical motor; — Heat, noise and vibration checks; — Testing windings; — Electrical wiring and control systems; — Pylon, extension and retraction systems; — Motor/propeller brake systems; — Motor ventilation systems; — Practical experience of 100-hour/annual inspections.	2
8L.20	Jet propulsion — Engine installation; — Pylon, extension and retraction systems; — Fire protection; — Fuel systems including lubrication; — Engine starting systems, gas assist; — Engine damage assessment; — Engine servicing; — Engine removal / refit and test; — Practical experience of conditional / run time / annual inspections; — Conditional inspections.	2
8L.21	Full authority digital engine control (FADEC)	2

MODULE 9L — BALLOON/AIRSHIP HOT AIR

	Level
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Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

<p>9L.1 Basic principles and assembly of hot-air balloons/airships</p> <ul style="list-style-type: none"> — Assembly and individual parts; — Envelopes; — Envelope Materials; — Envelope Systems; — Conventional and special shapes; — Fuel System; — Burner, burner frame and burner support rods; — Compressed-gas cylinders and compressed-gas hoses; — Basket and alternative devices (seats); — Rigging accessories; — Maintenance and servicing tasks; — Annual/100-hour inspection; — Log Books; — Aircraft Flight Manuals (AFMs) and Aircraft Maintenance Manuals (AMMs); — Rigging and launch preparation (launch restraint); — Launch. 	3
<p>9L.2 Practical training Operating controls, maintenance and servicing jobs (according to flight manual).</p>	3
<p>9L.3 Envelope</p> <ul style="list-style-type: none"> — Fabrics; — Seams; — Load tapes, rip stoppers; — Crown rings; — Parachute valve and fast-deflation systems; — Ripping panel; — Turning vent; — Diaphragms/catenaries (special shapes and airships); — Rollers, pulleys; — Control and shroud lines; — Knots; — Temperature indication label, temperature flag, envelope thermometer; — Flying wires; — Fittings, karabiners. 	3
<p>9L.4 Burner and fuel system</p> <ul style="list-style-type: none"> — Burner coils; 	3

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—	Blast, liquid and pilot valves;	
—	Burners/jets;	
—	Pilot lights/vaporisers/jets;	
—	Burner frame;	
—	Fuel lines/hoses;	
—	Fuel cylinders, valves and fittings.	
9L.5	Basket and basket suspension (incl. alternative devices)	3
—	Types of baskets (incl. alternative devices);	
—	Basket materials: cane and willow, hide, wood, trim materials, suspension cables;	
—	Seats, roller bearings;	
—	Karabiner, shackle and pins;	
—	Burner support rods;	
—	Fuel cylinder straps;	
—	Accessories.	
9L.6	Equipment	3
—	Fire extinguisher, fire blanket;	
—	Instruments (single or combined).	
9L.7	Minor repairs	3
—	Stitching;	
—	Bonding;	
—	Basket hide/trim repairs.	
9L.8	Procedures for physical inspection	2
—	Cleaning, use of lighting and mirrors;	
—	Measuring tools;	
—	Measure of controls deflection (only airships);	
—	Torque of screws and bolts;	
—	Wear of bearings (only airships);	
—	Inspection equipment;	
—	Calibration of measuring tools;	
—	Fabric Grab Test.	

MODULES 10L — BALLOON/AIRSHIP GAS (FREE/TETHERED)

		Level
10L.1	Basic principles and assembly of gas balloons/airships	3
—	Assembly of individual parts;	
—	Envelope and netting material;	
—	Envelope, ripping panel, emergency opening, cords and belts;	
—	Rigid gas valve;	

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

—	Flexible gas valve (parachute);	
—	Netting;	
—	Load ring;	
—	Basket and accessories (including alternative devices);	
—	Electrostatic discharge paths;	
—	Mooring line and drag rope;	
—	Maintenance and servicing;	
—	Annual inspection;	
—	Flight papers;	
—	Aircraft Flight Manuals (AFMs) and Aircraft Maintenance Manuals (AMMs);	
—	Rigging and launch preparation;	
—	Launch.	
10L.2	Practical training	3
—	Operating controls;	
—	Maintenance and servicing jobs (according to AMM and AFM);	
—	Safety rules when using hydrogen as lifting gas.	
10L.3	Envelope	3
—	Fabrics;	
—	Poles and reinforcement of pole;	
—	Ripping panel and cord;	
—	Parachute and shroud lines;	
—	Valves and cords;	
—	Filler neck, Poeschel-ring and cords;	
—	Electrostatic discharge paths.	
10L.4	Valve	3
—	Springs;	
—	Gaskets;	
—	Screwed joints;	
—	Control lines;	
—	Electrostatic discharge paths.	
10L.5	Netting or rigging (without net)	3
—	Kinds of net and other lines;	
—	Mesh sizes and angles;	
—	Net ring;	
—	Knotting methods;	
—	Electrostatic discharge paths.	
10L.6	Load ring	3
10L.7	Basket (incl. alternative devices)	3
—	Kinds of baskets (incl. alternative devices);	

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—	Strops and toggles;	
—	Ballast system (bags and supports);	
—	Electrostatic discharge paths.	
10L.8	Ripping cord and valve cords	3
10L.9	Mooring line and drag rope	3
10L.10	Minor repairs	3
—	Bonding;	
—	Splicing hemp ropes.	
10L.11	Equipment Instruments (single or combined).	3
10L.12	Tether cable (tethered gas balloons (TGB) only)	3
—	Kinds of cables;	
—	Acceptable damage of cable;	
—	Cable swivel;	
—	Cable clamps.	
10L.13	Winch (tethered gas balloons only)	3
—	Kinds of winches;	
—	Mechanical system;	
—	Electrical system;	
—	Emergency system;	
—	Grounding/ballasting of winch.	
10L.14	Procedures for physical inspection	2
—	Cleaning, use of lighting and mirrors;	
—	Measuring tools;	
—	Measure of controls deflection (only airships);	
—	Torque of screws and bolts;	
—	Wear of bearings (only airships);	
—	Inspection equipment;	
—	Calibration of measuring tools;	
—	Fabric grab test.	

MODULES 11L — AIRSHIPS HOT AIR/GAS

	Level
11L.1	3
—	Basic principles and assembly of small airships
—	Envelope, ballonnets;
—	Valves, openings;
—	Gondola;
—	Propulsion;

Changes to legislation: There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations. (See end of Document for details) View outstanding changes

—	Aircraft Flight Manuals (AFMs) and Aircraft Maintenance Manuals (AMMs);	
—	Rigging and launch preparation.	
11L.2	Practical training	3
—	Operating controls;	
—	Maintenance and servicing jobs (according to AMM and AFM).	
11L.3	Envelope	3
—	Fabrics;	
—	Ripping panel and cords;	
—	Valves;	
—	Catenary system.	
11L.4	Gondola (incl. alternative devices)	3
—	Kinds of gondolas (incl. alternative devices);	
—	Airframe types and materials;	
—	Identification of damage.	
11L.5	Electrical system	3
—	Basics about on-board electrical circuits;	
—	Electrical sources (accumulators, fixation, ventilation, corrosion);	
—	Lead, nickel-cadmium (NiCd) or other accumulators, dry batteries;	
—	Generators;	
—	Wiring, electrical connections;	
—	Fuses;	
—	External power source;	
—	Energy balance.	
11L.6	Propulsion	3
—	Fuel system: tanks, lines, filters, vents, drains, filling, selector valve, pumps, indication, tests, bonding;	
—	Propulsion instruments;	
—	Basics about measuring and instruments;	
—	Revolution measuring;	
—	Pressure measuring;	
—	Temperature measuring;	
—	Available fuel/power measuring.	
11L.7	Equipment	3
—	Fire extinguisher, fire blanket;	
—	Instruments (single or combined).	

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MODULE 12L — RADIO COM/ELT/TRANSPONDER/INSTRUMENTS

	Level
12L.1 Radio Com/ELT — Channel spacing; — Basic functional test; — Batteries; — Testing and maintenance requirements.	2
12L.2 Transponder — Basic operation; — Typical portable configuration including antenna; — Explanation of Modes A, C, S; — Testing and maintenance requirements.	2
12L.3 Instruments — Handheld altimeter/variometers; — Batteries; — Basic functional test.	2

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Appendix VIII

Basic examination standard for category L aircraft maintenance licence

- (a) The standardisation basis for examinations related to the Appendix VII basic knowledge requirements shall be as follows:
- (i) all examinations must be carried out using the multiple-choice question format as specified in point (ii). The incorrect alternatives must seem equally plausible to anyone ignorant of the subject. All of the alternatives should be clearly related to the question and of similar vocabulary, grammatical construction and length. In numerical questions, the incorrect answers should correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they must not be mere random numbers;
 - (ii) each multiple-choice question must have three alternative answers of which only one must be the correct answer and the candidate must be allowed a time per module which is based upon a nominal average of 75 seconds per question;
 - (iii) the pass mark for each module is 75 %;
 - (iv) penalty marking (negative points for failed questions) is not to be used;
 - (v) the level of knowledge required in the questions must be proportionate to the level of technology of the aircraft category.
- (b) The number of questions per module shall be as follows:
- (i) module 1L 'Basic knowledge': 12 questions. Time allowed: 15 minutes;
 - (ii) module 2L 'Human factors': 8 questions. Time allowed: 10 minutes;
 - (iii) module 3L 'Aviation legislation': 24 questions. Time allowed: 30 minutes;
 - (iv) module 4L 'Airframe wooden/metal tube and fabric': 32 questions. Time allowed: 40 minutes;
 - (v) module 5L 'Airframe composite': 32 questions. Time allowed: 40 minutes;
 - (vi) module 6L 'Airframe metal': 32 questions. Time allowed: 40 minutes;
 - (vii) module 7L 'Airframe general': 64 questions. Time allowed: 80 minutes;
 - (viii) module 8L 'Power plant': 48 questions. Time allowed: 60 minutes;
 - (ix) module 9L 'Balloon/Airship hot air': 36 questions. Time allowed: 45 minutes;
 - (x) module 10L 'Balloon/Airship gas (free/tethered)': 40 questions. Time allowed: 50 minutes;
 - (xi) module 11L 'Airships hot air/gas': 36 questions. Time allowed: 45 minutes;
 - (xii) Module 12L 'Radio Com/ELT/transponder/instruments': 16 questions. Time allowed 20 minutes.]

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- (1) For the purpose of this point 4, a ‘chapter’ means each one of the rows preceded by a number in the table contained in point 3.1(e).
- (2) For the purpose of this point 5, a ‘chapter’ means each one of the rows preceded by a number in the tables contained in points 3.1(e) and 3.2(b).

Changes to legislation:

There are outstanding changes not yet made to Commission Regulation (EU) No 1321/2014. Any changes that have already been made to the legislation appear in the content and are referenced with annotations.

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Changes and effects yet to be applied to :

- Annex 3 point 66.A.20(b)(1) substituted by [S.I. 2023/588 reg. 26\(a\)](#)
- Annex 3 point 66.B.500(8) substituted by [S.I. 2023/588 reg. 27\(4\)](#)
- Annex 3 point 66.A.25(a) word substituted by [S.I. 2023/588 reg. 26\(b\)](#)
- Annex 3 point 66.B.120(b)(2) words substituted by [S.I. 2023/588 reg. 27\(2\)](#)

Changes and effects yet to be applied to the whole legislation item and associated provisions

- Annex 1 Appendix 4 point 12 Annex 1 Appendix 4 point 13 renumbered as Annex 1 Appendix 4 point 12 by [S.I. 2023/588 reg. 19\(5\)](#)
- Annex 1 Appendix 3 CAA Form 15b substituted by [S.I. 2023/588 reg. 18](#)
- Annex 1 Appendix 4 point 1 2 substituted by [S.I. 2023/588 reg. 19\(3\)](#)
- Annex 1 Appendix 4 point 8-11 substituted for Annex 1 Appendix 4 points 8-12 by [S.I. 2023/588 reg. 19\(4\)](#)
- Annex 1 Appendix 4 heading words omitted by [S.I. 2023/588 reg. 19\(2\)\(b\)](#)
- Annex 1 Appendix 4 point 12 table words omitted by [S.I. 2023/588 reg. 19\(6\)](#)
- Annex 1 Appendix 4 heading words substituted by [S.I. 2023/588 reg. 19\(2\)\(a\)](#)
- Annex 1 Appendix 7 words substituted by [S.I. 2023/588 reg. 20](#)
- Annex 3 Subpart E word substituted by [S.I. 2023/588 reg. 27\(3\)](#)
- Annex 3 Appendix 5 point 2 words substituted by [S.I. 2023/588 reg. 28](#)
- Annex 2 s. B substituted by [S.I. 2023/588 reg. 23](#)
- Annex 2 Appendix 2 substituted by [S.I. 2023/588 reg. 24](#)
- Annex 2 s. A heading words inserted by [S.I. 2023/588 reg. 22\(2\)](#)
- Annex 1 Table of Contents word substituted by [S.I. 2019/645 reg. 246\(1\)\(b\)\(iv\)](#) (This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 1 point M.A.202(b) word substituted by [S.I. 2019/645 reg. 247\(3\)\(b\)](#) (This amendment not applied to legislation.gov.uk. Reg. 247(3) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 18)
- Annex 1 point M.A.302(g) word substituted by [S.I. 2019/645 reg. 248\(3\)\(d\)](#) (This amendment not applied to legislation.gov.uk. Reg. 248(3)(d) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 19(3)(c))
- Annex 1 point M.A.302(h) word substituted by [S.I. 2019/645 reg. 248\(3\)\(e\)\(i\)](#) (This amendment not applied to legislation.gov.uk. Reg. 248(3)(e) substituted immediately before IP completion day by S.I. 2020/1116, regs. 1(3), 19(3)(d))
- Annex 1 point M.A.302(h) word substituted by [S.I. 2019/645 reg. 248\(3\)\(e\)\(ii\) \(aa\)](#) (This amendment not applied to legislation.gov.uk. Reg. 248(3)(e) substituted immediately before IP completion day by S.I. 2020/1116, regs. 1(3), 19(3)(d))
- Annex 1 point M.A.305(d) word substituted by [S.I. 2019/645 reg. 248\(5\)\(a\)](#) (This amendment not applied to legislation.gov.uk. Reg. 248(5)(a) substituted immediately before IP completion day by S.I. 2020/1116, regs. 1(3), 19(4))
- Annex 1 point M.A.306 word substituted by [S.I. 2019/645 reg. 248\(6\)](#) (This amendment not applied to legislation.gov.uk. Reg. 248(6) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 19(5))
- Annex 1 point M.A.615 word substituted by [S.I. 2019/645 reg. 251\(5\)](#)
- Annex 1 point M.A.708(b) word substituted by [S.I. 2019/645 reg. 252\(4\)](#)
- Annex 1 point M.A.710(a) word substituted by [S.I. 2019/645 reg. 252\(5\)\(a\)](#)
- Annex 1 point M.A.710(f) word substituted by [S.I. 2019/645 reg. 252\(5\)\(c\)](#)
- Annex 1 point M.A.710(h) word substituted by [S.I. 2019/645 reg. 252\(5\)\(d\)](#)

- Annex 1 point M.A.901(l) word substituted by [S.I. 2019/645 reg. 254\(2\)\(c\)\(i\)](#) (This amendment not applied to legislation.gov.uk. Reg. 254(2)(c) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 22(a)(ii))
- Annex 1 point M.A.901(l) word substituted by [S.I. 2019/645 reg. 254\(2\)\(c\)\(iii\)](#) (This amendment not applied to legislation.gov.uk. Reg. 254(2)(c) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 22(a)(ii))
- Annex 1 point M.A.901(l) word substituted by [S.I. 2019/645 reg. 254\(2\)\(c\)\(iv\)](#) (This amendment not applied to legislation.gov.uk. Reg. 254(2)(c) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 22(a)(ii))
- Annex 1 point M.A.904(e) word substituted by [S.I. 2019/645 reg. 254\(5\)\(d\)](#) (This amendment not applied to legislation.gov.uk. Reg. 254(5)(d) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 22(b)(ii))
- Annex 1 point M.B.104(b) word substituted by [S.I. 2019/645 reg. 256\(4\)\(b\)\(ii\)](#) (This amendment not applied to legislation.gov.uk. Reg. 256(4)(b)(ii) substituted immediately before IP completion day by S.I. 2020/1116, regs. 1(3), 23(a))
- Annex 1 Table of Contents words omitted by [S.I. 2019/645 reg. 246\(1\)\(a\)\(i\)](#) (This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 1 Table of Contents words omitted by [S.I. 2019/645 reg. 246\(1\)\(b\)\(iii\)](#) (This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 1 point M.A.202(a) words omitted by [S.I. 2019/645 reg. 247\(3\)\(a\)\(ii\)](#) (This amendment not applied to legislation.gov.uk. Reg. 247(3) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 18)
- Annex 1 Appendix 3 words omitted by [S.I. 2019/645 reg. 262\(4\)\(d\)\(iv\)](#)
- Annex 1 Table of Contents words omitted by [S.I. 2020/1116 reg. 73\(2\)](#) (This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 1 Table of Contents words substituted by [S.I. 2019/645 reg. 246\(1\)\(a\)\(ii\)](#) (This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 1 Table of Contents words substituted by [S.I. 2019/645 reg. 246\(1\)\(b\)\(i\)](#) (This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 1 Table of Contents words substituted by [S.I. 2019/645 reg. 246\(1\)\(b\)\(ii\)](#) (This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 1 Table of Contents words substituted by [S.I. 2019/645 reg. 246\(1\)\(c\)\(i\)](#) (This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 1 Table of Contents words substituted by [S.I. 2019/645 reg. 246\(1\)\(c\)\(ii\)](#) (This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 1 point M.A.202(a) words substituted by [S.I. 2019/645 reg. 247\(3\)\(a\)\(i\)](#) (This amendment not applied to legislation.gov.uk. Reg. 247(3) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 18)
- Annex 1 point M.A.302(h) words substituted by [S.I. 2019/645 reg. 248\(3\)\(e\)\(ii\) \(bb\)](#) (This amendment not applied to legislation.gov.uk. Reg. 248(3)(e) substituted immediately before IP completion day by S.I. 2020/1116, regs. 1(3), 19(3)(d))
- Annex 1 point M.A.607(a) words substituted by [S.I. 2019/645 reg. 251\(3\)\(a\)](#) (This amendment not applied to legislation.gov.uk. Reg. 251(3)(a) substituted immediately before IP completion day by S.I. 2020/1116, regs. 1(3), 20(b))
- Annex 1 point M.A.710(e) words substituted by [S.I. 2019/645 reg. 252\(5\)\(b\)](#)
- Annex 1 point M.A.901(l) words substituted by [S.I. 2019/645 reg. 254\(2\)\(c\)\(ii\)](#) (This amendment not applied to legislation.gov.uk. Reg. 254(2)(c) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 22(a)(ii))
- Annex 1 Appendix 3 words substituted by [S.I. 2019/645 reg. 262\(4\)\(d\)\(i\)](#)
- Annex 1 Appendix 3 words substituted by [S.I. 2019/645 reg. 262\(4\)\(d\)\(ii\)](#)

- Annex 1 Appendix 3 words substituted by [S.I. 2019/645 reg. 262\(4\)\(d\)\(iii\)](#)
- Annex 2 Table of contents word substituted by [S.I. 2019/645 reg. 264\(2\)\(a\)](#)
- Annex 2 Table of contents word substituted by [S.I. 2019/645 reg. 264\(2\)\(b\)](#)
- Annex 2 Table of contents words omitted by [S.I. 2019/645 reg. 264\(2\)\(c\)](#)
- Annex 2 Table of contents words substituted by [S.I. 2019/645 reg. 264\(2\)\(d\)](#)
- Annex 3 Table of Contents word substituted by [S.I. 2019/645 reg. 269\(2\)\(b\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 3 Table of Contents word substituted by [S.I. 2019/645 reg. 269\(2\)\(c\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 3 Table of Contents words substituted by [S.I. 2019/645 reg. 269\(2\)\(a\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 3 Table of Contents words substituted by [S.I. 2019/645 reg. 269\(2\)\(d\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 4 Table of contents word substituted by [S.I. 2019/645 reg. 280\(2\)\(a\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 4 Table of contents words substituted by [S.I. 2019/645 reg. 280\(2\)\(b\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 4 Table of contents words substituted by [S.I. 2019/645 reg. 280\(2\)\(c\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 4 Table of contents words substituted by [S.I. 2019/645 reg. 280\(2\)\(d\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 4 Appendix 3 heading words substituted by [S.I. 2019/645 reg. 283\(3\)\(a\)](#) (This amendment not applied to legislation.gov.uk. Reg. 283(3)(a) omitted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 27(b)(i))
- Art. 5(7) inserted by [S.I. 2023/588 reg. 15\(3\)](#)
- Annex 5a Table of Contents word omitted by [S.I. 2019/645 reg. 284\(2\)\(a\)\(i\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5a point T.A.716 word substituted by [S.I. 2019/645 reg. 284\(3\)\(c\)\(iii\)\(aa\)](#)
(This amendment not applied to legislation.gov.uk. Reg. 284(3)(c) substituted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 28(a)(ii))
- Annex 5a Table of Contents words omitted by [S.I. 2020/1116 reg. 75\(2\)](#) (This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5a Table of Contents words substituted by [S.I. 2019/645 reg. 284\(2\)\(a\)\(ii\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5a Table of Contents words substituted by [S.I. 2019/645 reg. 284\(2\)\(a\)\(iii\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5a point T.A.716 words substituted by [S.I. 2019/645 reg. 284\(3\)\(c\)\(iii\)\(bb\)](#) (This amendment not applied to legislation.gov.uk. Reg. 284(3)(c) substituted immediately before IP completion day by virtue of S.I. 2020/1116, regs. 1(3), 28(a)(ii))
- Annex 5b point ML.A.401(b) substituted by [S.I. 2023/588 reg. 29\(2\)](#)
- Annex 5b point ML.A.802(a) substituted by [S.I. 2023/588 reg. 29\(4\)](#)
- Annex 5b Appendix 4 CAA Form 15c substituted by [S.I. 2023/588 reg. 30](#)

- Annex 5b Table of Contents word substituted by [S.I. 2020/1116 reg. 76\(2\)\(b\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5b point ML.A.502 words inserted by [S.I. 2023/588 reg. 29\(3\)\(c\)](#)
- Annex 5b point ML.A.906(a) words inserted by [S.I. 2023/588 reg. 29\(5\)](#)
- Annex 5b Table of Contents words substituted by [S.I. 2020/1116 reg. 76\(2\)\(a\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5b Table of Contents words substituted by [S.I. 2020/1116 reg. 76\(2\)\(c\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5b point ML.A.501(a) words substituted by [S.I. 2023/588 reg. 29\(3\)\(a\)](#)
- Annex 5b point ML.A.502(a) words substituted by [S.I. 2023/588 reg. 29\(3\)\(b\)\(i\)](#)
- Annex 5b point ML.A.502(a) words substituted by [S.I. 2023/588 reg. 29\(3\)\(b\)\(ii\)](#)
- Annex 5c Table of Contents words omitted by [S.I. 2020/1116 reg. 77\(2\)\(a\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5c Table of Contents words substituted by [S.I. 2020/1116 reg. 77\(2\)\(b\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5d point CAO.A.045(a)(2) words inserted by [S.I. 2023/588 reg. 31\(2\)\(a\)\(i\)](#)
- Annex 5d Table of Contents words omitted by [S.I. 2020/1116 reg. 78\(2\)\(a\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5d Table of Contents words omitted by [S.I. 2020/1116 reg. 78\(2\)\(b\)](#)
(This amendment not applied to legislation.gov.uk. The table of contents for this legislation will be dynamically updated when its provisions are revised)
- Annex 5d point CAO.A.045(a)(2) words substituted by [S.I. 2023/588 reg. 31\(2\)\(a\)\(ii\)](#)
- Annex 5d point CAO.A.105(a) words substituted by [S.I. 2023/588 reg. 31\(2\)\(b\)](#)