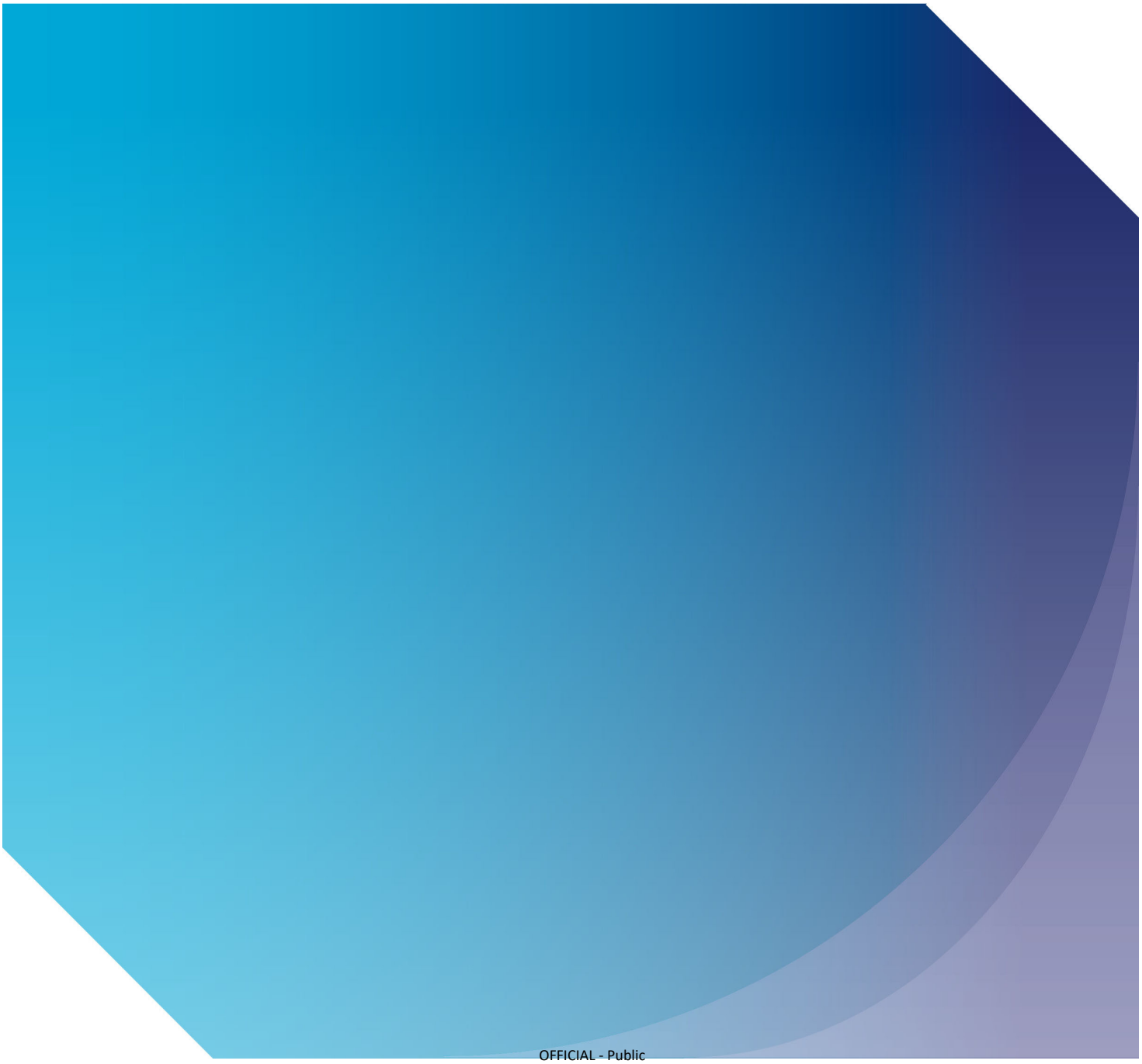
UK Civil Aviation Authority

Proposed amendments to Annex III (Part-66) to UK Regulation (EU) 1321/2014 Continuing Airworthiness Requirements

Consultation proposal under Rulemaking Task 0201 – Part 66 and Part 147 Regulation Rule and Associated AMC and GM change.

January 2026



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Civil Aviation Authority
Aviation House
Beehive Ring Road
Crawley
West Sussex
RH6 0YR

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Enquiries regarding the content of this publication should be addressed to: awconsultations@caa.co.uk

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Key

Highlighted grey– new text.

~~Strikethrough~~ – to be deleted. In red where strikethrough is not obvious.

Blue text – Editorial note or intent of proposed amendment.

UK Reg (EU) 1321/2014 Continuing Airworthiness - Articles

Article 6 Training organisation requirements

1. Organisations involved in the training of personnel referred to in Article 5 mustshall be approved in accordance with Annex IV (Part-147) to be entitled:

(a) to conduct recognised basic training courses; and/or

(b) to conduct recognised type training courses; and

(c) to conduct examinations; and

(d) to issue training certificates.

2. Any maintenance training organisation approval issued or recognised by the CAA in accordance with the JAA requirements and procedures and valid at the time of entry into force of Regulation (EC) No 2042/2003 mustshall be deemed to have been issued in accordance with this Regulation.

3. Type training courses approved before the approval of the minimum syllabus of certifying staff type rating training in the operational suitability data for the relevant type in accordance with Regulation (EU) No 748/2012 mustshall include the relevant elements defined in the mandatory part of that operational suitability data not later than 18 December 2017 or within two years after the operational suitability data was approved, whichever is the latest.

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18 December 2017 or within two years after the operational suitability data was approved, whichever is the latest.

0201.01 - Intent of proposed changes – Article 6

No specific wording is provided at this time however Article 6 is to be amended to provide clarity on the transition period allowing those conducting Basic Training on the old syllabus to still be able to apply for a licence.

It will also provide clarity of what regulation reference is required on the Certificates of Recognition (CofR) issued by Part 147's in order to be accepted. This is because the CofR format is proposed for amendment under this SI and therefore the CofR cannot refer to the later version of the regulation, if it is to be issued in the previous format during the transition period.

It will further provide guidance to the CAA on what can be accepted.

The current proposed timelines are:

- The Statutory Instrument (SI) will be made in 2027. Some elements will come into force within a few months. These elements will be those that are easily implemented or affect the CAA.
- For the majority of the SI, the coming into force date will be in 2029, 2 years following the date the SI is made.
- For courses that begin prior to the coming into force date in 2029, there will be a 4-year transition period enabling the CofR's issued following those courses to be accepted.
- Any courses begun post the coming into force date of 2029 will need to be on the new syllabus.

Annex III (Part-66)

GENERAL

66.1 CAA

[...]

(b) The CAA mustshall be responsible for defining:

1. the list of aircraft types; and

2. what airframe/engine combinations are included in each particular aircraft type rating.

3. the licence (sub)category(ies) that apply in respect of aircraft not otherwise covered by any licence (sub)category in point 66.A.3(a), which entitle the holder of that licence to exercise the privileges of point 66.A.20 on that aircraft.

0201.02 Intent of proposed changes - 66.1 - CAA
This proposed addition is to allow the CAA to categorise novel or new aircraft within pre-existing Part 66 (sub)category(ies) they would not otherwise sit within, so that they can be maintained by licensees. This is because amending the regulation to create new (sub)category(ies) and consequential module amendments for a minority of aircraft is not sustainable long term for the CAA or for industry. This is particularly so when the design of these aircraft are still in development.

SECTION A - TECHNICAL REQUIREMENTS

Subpart A - Aircraft Maintenance Licence

66.A.3 Licence categories and subcategories

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

(1) Category A:

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

— A1 Aeroplanes Turbine;

— A2 Aeroplanes Piston;

— A3 Helicopters Turbine;

— A4 Helicopters Piston.

(ii) Subcategories A1 and A3 may also be used for aircraft not covered by any A subcategory.

~~(b)~~(2) Category B1, divided into the following subcategories:

— B1.1 Aeroplanes Turbine;

— B1.2 Aeroplanes Piston;

— B1.E Aeroplanes with electric power plant and MTOM below 5700 kg;

— B1.3 Helicopters Turbine;

— B1.4 Helicopters Piston.

~~(c)~~(3) Category B2 The B2 licence is applicable to all aircraft.

~~(d)~~(4) 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 must~~shall~~ contain, as a minimum, one system rating.

~~(e)~~ (5) Category B3 The B3 licence is applicable to piston-engine non-pressurised aeroplanes of 2000 kg Maximum Take-off Mass (MTOM) and below.

~~(f)~~ (6) 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)~~(7) Category C

The C licence is applicable to aeroplanes and helicopters.

(8) When an aircraft can be considered as included in more than one of the above (sub)categories, the CAA, based on the aircraft characteristics, must establish the (sub)category(ies) of the licence applicable for the aircraft in its type certificate data sheet.

(b) Additionally, for aircraft and combinations of aircraft and power plant not referred to in point (a), the CAA must identify such licence (sub)category(ies) in the operational suitability data established in accordance with UK Regulation (EU) No 748/2012, taking into consideration a report from the applicant for, or holder of, the aircraft type certificate which assesses the architecture and systems of the aircraft (and power plant) against the syllabus of the basic knowledge modules and knowledge levels, as relevant to the designated licence (sub)category, and the privileges established in 66.A.20.

0201.03 – Intent of proposed changes - 66.A.3 Licence categories and subcategories
In-line with 66.1 - this proposed for addition to allow the CAA to categorise novel or new aircraft that do not sit within the (sub)category(ies) within Part 66. This is because amending the regulation to create new (sub)category(ies) and consequential module amendments for a minority of aircraft is not sustainable long term for the CAA or for industry. This is particularly so when the design of these aircraft is still in development. The intent is that the CAA will review each new design and will allocate a licence (sub)category for the licence based on the TCDS. This gives the flexibility in the rule to allow engineers to work on novel new aircraft. This amendment is aimed at new, electric, hybrid or hydrogen powerplants or Vertical Take-Off and Landing (VTOL) aircraft. For electrically powered aircraft below MTOM below 5700kg, the B1.E licence is proposed. The modules and corresponding syllabus have been updated.

66.A.5 Aircraft groups

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

(1) Group 1 is composed of:

(i) aeroplanes certified for a MTOM exceeding 5 700kg; aeroplanes certified for a maximum passenger seating configuration of more than 19; aeroplanes certified for operation with a minimum crew of at least two pilots; aeroplanes equipped with (one) turbojet engine(s) or more than one turboprop engine; aeroplanes with maximum certified operating altitude exceeding FL290 powered with a power plant other than piston; aeroplanes with a power plant not being piston, turbine or electric;

(ii) helicopters certified for a MTOM exceeding 3 175kg; helicopters certified for a maximum passenger seating configuration of more than nine; helicopters certified for operation with a minimum crew of at least two pilots; helicopters equipped with multiple engines; helicopters equipped with a power plant not being piston, turbine or electric;

(iii) gas airships other than ELA2;

(iv) non-conventional helicopter and powered-lift aircraft; and

(v) aircraft equipped with fly-by-wire systems.

~~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 CAA.~~

Notwithstanding the first paragraph, t~~T~~he CAA 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 CAA in this subgroup because of their lower complexity.~~

(ii) subgroup 2b~~:~~

— single turbine engine helicopters,

~~— those multiple turbine engine helicopters classified by the CAA in this subgroup because of their lower complexity.~~

(iii) subgroup 2c~~:~~

— single piston engine helicopters,

~~— those multiple piston engine helicopters classified by the CAA in this subgroup because of their lower complexity.~~

(iv) subgroup 2E: aeroplanes with electric power plant.

(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.

0201.04 – Intent of proposed changes - 66.A.5 – Aircraft Groups
Groups and subgroups are proposed to be amended to allow for new or novel aircraft such as electric powerplant and VTOL aircraft. This includes Group 1 which is amended to incorporate novel aircraft and powerplants (such as VTOL or electric aircraft that do not come under Subgroup 2E) into Group 1. In Point (2) there is the addition of subgroup 2E for electric aeroplanes. Note that in Subgroup 2E, the E stands for electric and is not a continuation of 2a, 2b and 2c. Point (iv) is linked to the output of RMT 0158-002 Policy framework for new types of Vertical-Take Off and Landing (VTOL) aircraft which is out at consultation until 29th January 2026 and therefore this will be updated to reflect any amendments following that consultation. Note – the dashes in point (2) '-' are deleted but the strike through does not show.

66.A.20 Privileges

(a) The following privileges mustshall 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 permits 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 permits 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

— 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 mustshall 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. A category B2L aircraft maintenance licence shall permits 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~~ permits 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. A category L aircraft maintenance licence ~~shall~~ permits 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~~ permits the holder to issue certificates of release to service following base maintenance of the aircraft. The privileges apply to the aircraft in its entirety.

A Category C aircraft maintenance licence issued with respect to complex motor-powered aircraft must also include the privileges of a Category C aircraft maintenance licence with respect to other than complex motor-powered aircraft.

8. In addition, the privileges in point 1 to 7 are also extended to aircraft referred to in 66.A.3(b) for the corresponding licence (sub)category(ies) identified as applicable in the operational suitability data established in accordance with Regulation (EU) No 748/2012 of these aircraft.

(b) The holder of an aircraft maintenance licence may not exercise its privileges unless:

1. in compliance with the applicable requirements of Annex I (Part-M), Annex II (Part-145), Annex Vb (Part-ML) and Annex Vd (Part-CAO); 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.

0201.05 Intent of proposed changes – 66.A.20 - Privileges
Point 7: Is amended to ensure other than complex aircraft are included on Category C aircraft maintenance licence which are issued with respect to complex motor-powered aircraft. Point 8: This proposed for addition to allow the CAA to categorise novel or new aircraft that do not sit within the (sub)category(ies) within Part 66. This is because amending the regulation to create new (sub)category(ies) and consequential module amendments for a minority of aircraft is not sustainable long term for the CAA or for industry. This is particularly so when the design of these aircraft is still in development. The intent is that the CAA will review each new design and will allocate a licence (sub)category for the licence based on the TCDS. This gives the flexibility in the rule to allow engineers to work on novel new aircraft. This amendment is aimed at new, electric, hybrid or hydrogen powerplants or Vertical Take-Off and Landing (VTOL) aircraft.

66.A.25 Basic knowledge requirements

(a) ~~For licences other than category L, an~~ The applicant for an aircraft maintenance licence, or for the addition of a category or subcategory to such a licence, must demonstrate by examination a level of knowledge of the ~~appropriate~~ subject modules in accordance with Appendix I to Annex III (Part-66) (applicable to category A, B1, B1.E B2, B2L, B3 and C licences) or Appendix VII (applicable to category L licences). ~~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 CAA.~~

(b) The basic knowledge examinations must comply with the standard set out in Appendix II (applicable to category A, B1, B2, B2L, B3 and C licences) or Appendix VIII (applicable to category L licences) to Annex III (Part-66) and must be conducted either of the following:

(1) a training organisation approved in accordance with Annex IV (Part-147);

(2) the CAA;

(3) for category L licences, another organisation as agreed by the CAA. ~~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 CAA or as agreed by the 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 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 CAA.~~

(c)~~(d)~~ The basic knowledge examinations ~~training courses and examinations~~ must~~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~~ If the basic knowledge examinations have not been passed within that 10-year period, credits for basic knowledge examinations may be obtained in accordance with point ~~(e)~~(d).The 10 years' validity requirement applies to each individual module examination, except for those module examinations which were already passed as part of another licence category and the licence has already been issued.

(~~e~~d) The applicant may apply to the CAA for full or partial ~~examination~~ credits for the basic knowledge requirements for:

(~~i~~1) basic knowledge examinations which were passed more than 10 years before the application for an aircraft maintenance licence was submitted (see point (c));~~that do not meet the requirement laid down in point (d);~~

(~~ii~~2) any other technical training and examination ~~qualification~~ considered by the CAA as ~~to be~~ equivalent to the knowledge ~~standard~~ requirements of Annex III (Part-66).

~~Credits shall be granted~~ The applicant must provide evidence of the granted credits by referring to an examination credit report approved by the CAA 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 CAA. The applicant may apply for new credits after expiration.~~

(e) A basic training course without Modules 1 and 2 of Appendix I to this Annex is considered a full basic training course approved in accordance with Annex IV (Part-147) only when knowledge of those Modules 1 and 2 is subsequently demonstrated by the applicant by examination and are credited by the CAA.

(f) The holder of an aircraft maintenance licence applying for the addition of a different category or subcategory, or system rating, must include evidence of examination to the level of knowledge that is appropriate to the related subject modules in accordance with Appendix I (for category A, B1, B2, B2L, B3 and C licences) or Appendix VII (for category L licences).

Appendix IV details the modules of Appendix I (for category B1, B2, B2L, B3 and C licences) or Appendix VII (for category L licences) required for the addition of a new category or subcategory to an existing licence issued in accordance with this Annex A.

0201.06 Intent of proposed changes – 66.A.25
Point (a) is amended to account for the amendments made to Appendix II and clarify that the examinations are to be done for the applicable category, including Category L licences. Point (b) is amended to clarify that there are 3 types of organisations that can conduct Basic Examination, this is to add the ability for the CAA to approve non Part-147 organisation to conduct Category L licence examinations. This is because there are not always Part-147 organisations with the approval to conduct these examinations and this reduces the burden on the CAA.

Point (c) is deleted as the amendments to point (a) provide the clarification that the B2L ratings must demonstrate the required knowledge level through the modules required by Part 66. This supports amendments throughout Part 66 which introduce clear requirements of what modules are required for each category of licence.

Point (d) has become point (c) and includes and amends the 10 year validity requirements enabling point (f) to be deleted. It also provides clarification as to the validity of examinations conducted outside of the 10 year period whereby the licence for those examinations has already been issued.

Point (e) now (d) is amended to clarify that the credits are only for examinations passed 10 years prior to application.

A new point (e) is added to provide clarification of the requirements for modules 1 and 2 when they were not conducted as part of a basic training course but sat under a separate examination.

The new point (f) provides direction to Appendix I and VII which clarify the exams required for each licence and Appendix IV which clarifies any addition examinations required to move between licences. This is to support the proposed change within the module structure allowing for easier movement between licence categories and ratings.

66.A.30 Basic experience requirements

(a) An applicant for an aircraft maintenance licence mustshall have acquired:

1. For category A, subcategories B1.2, B1.E 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 CAA 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 CAA as a skilled worker, in a technical trade; or

(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. 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 CAA, 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) mustshall 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. 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 as certifying staff, in accordance with point 145.A.35 of Annex II (Part 145), at a maintenance organisation working on complex motor-powered aircraft, including 12 months of experience as base maintenance support staff; or

(ii) 5 years of experience exercising category B1.2, B1.E ~~or~~ B1.4 or L5 privileges ~~on complex motor-powered aircraft~~ as support staff, or both support staff and certifying staff, ~~or as support staff according to~~ in accordance with point 145.A.35 of Annex II (Part-145), at a maintenance organisation working on complex motor-powered aircraft, including 12 months of experience as base maintenance support staff; or ~~a combination of both;~~

(iii) for applicants holding an academic degree, 3 years of experience in working at an aircraft maintenance environment, on a representative selection of tasks that are directly associated with aircraft maintenance, including 6 months of participation in the performance of base maintenance tasks in operating CMPA.

(iv) To extend the endorsed category C with respect to other than CMPA to CMPA:

(a) 2 years of experience in exercising category B1.1, B1.2, B1.E, B1.3, B1.4, B2 or L5 privileges as support staff, or both support staff and certifying staff, in accordance with point 145.A.35 of Annex II (Part-145), at a maintenance organisation working on complex motor-powered aircraft, including 6 months of experience as base maintenance support staff; or';

b) when holding a category C licence based on an academic degree, 2 years of experience in working at an aircraft maintenance environment on

a representative selection of tasks that are directly associated with aircraft maintenance, including 3 months of participation in the performance of base maintenance tasks in operating CMPA.

4. For category C with respect to other than complex motor-powered aircraft:

(i) 3 years of experience exercising category B1, ~~or~~ B2 B2L, B3 or L privileges ~~on other than complex motor-powered aircraft or as support staff according to point 145.A.35, or a combination of both;~~ as support staff, or both support staff and certifying staff, in accordance with point 145.A.35 of Annex II (Part-145), at a maintenance organisation in operating other than CMPA, including 6 months of experience as base maintenance support staff; or

(ii) for holders of an academic degree, 3 years of experience in working at an aircraft maintenance environment, on a representative selection of tasks that are directly associated with aircraft maintenance, including 6 months of participation in the performance of base maintenance tasks in operating other than CMPA.

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 CAA, 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.~~ The academic degree must be in a relevant technical discipline, issued by a university or any other higher educational institution recognised by the CAA.

(b) An applicant for an extension to an aircraft maintenance licence must~~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 must~~shall~~ be practical and involve a representative cross section of maintenance tasks on aircraft.

(d) At least 1 year of the required experience must~~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 must~~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 must~~shall~~ be typical of the new licence category/subcategory sought.

(da) Notwithstanding points (a), (b) and (d), practical maintenance experience and recent maintenance experience gained in aircraft referred to in point (b) of point 66.A.3 must account for a maximum of 50% of the practical maintenance experience and

recent maintenance experience required in points (a), (b) or (d) in respect of the licence (sub)category(ies) on which these aircraft can be endorsed.

(e) Notwithstanding point (a), aircraft maintenance experience gained ~~outside a civil aircraft maintenance environment shall be accepted~~ in organisations not approved in accordance with Annexes II (Part-145) or Vd (Part-CAO) may be recognised when such maintenance is equivalent to that required by this Annex (Part-66) as established by the CAA.

However, demonstration of a~~A~~dditional experience ~~of civil aircraft maintenance~~ in organisations approved in accordance with Annexes II or Vd or under the supervision of independent certifying staff, is~~shall, however, be~~ required unless otherwise accepted by the CAA. ~~to ensure adequate understanding of the civil aircraft maintenance environment.~~

(f) Experience must~~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.

0201.07 Intent of proposed changes – 66.A.30
The last two paragraphs of point (a)(2b) are proposed to be deleted to remove the conditions for Category L licences as the knowledge and experience required to extend a licence (sub)category is proposed for addition to Appendix IV. Points (a)(3), (a)(4) and (a)(5) are proposed to be amended to clarify conditions for Category C for CMPA and other than CMPA (with or without an academic path). Providing this clarity will help support industry in supporting those wishing to gain a Category C licence and understand the routes available to them. This includes amendments to include the B1.E category licence. Point (da) is added for novel and new aircraft and technology, ensuring that if working on these aircraft, they can only account for up to 50% of the experience required. This ensures experience on traditional aircraft. Proposed point (e) amendments provide a clarified condition for experience gained in civil maintenance environment, i.e. Part-145 and Part-CAO. The addition for ‘unless otherwise accepted by the CAA’ intends to enable the CAA to recognise the experience of people working on national aircraft such as military aircraft, so long as the maintenance experience has been assessed by the CAA as being equivalent.

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 CAA, in order to verify that the information contained in the licence is the same as that contained in the CAA's records , pursuant to point 66.B.120.

(b) The holder of an aircraft maintenance licence must~~shall~~ complete the relevant parts of CAA Form 19 (see Appendix V) and submit it with the holder's copy of the licence to the CAA, unless the holder works in a maintenance organisation approved in accordance with Annex II (Part-145) or Annex Vd (Part-CAO) 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 CAA and (ii) when the holder has signed the document.

0201.08 Intent of proposed changes – 66.A.40
Part CAO added to point (b) to enable the consideration for organisations approved in accordance with Part-CAO for submission of applications for Part-66 licences. Note that 66.A.40 is being further amended under RMT 0193 for the introduction of the Digital Personnel Licence.

66.A.45 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;

(iii) for Group 4 aircraft, the full group rating.

— For category B3, the relevant rating is ‘piston-engine non-pressurised aeroplanes of 2000 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 CAA 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 mustshall comply with Appendix III to Annex III (Part-66), except in the case of gas airships, where it mustshall be directly approved by the CAA.

The on-the-job training on an aircraft referred to in 66.A.3(b) may only be considered for the purpose of endorsement of the licence as the first aircraft type rating within a given (sub)category, as described in the previous paragraph, when so established in the aircraft operational suitability data.

Otherwise, an aircraft referred to in 66.A.3(b) may be endorsed as a first aircraft type rating within a given (sub)category after satisfactory completion of the corresponding on-the-job training, but in such case, additional on-the-job training will be required for the endorsement on the licence within that (sub)category of the first aircraft type rating belonging to the categories referred in 66.A.3(a).';

Additionally, for any new category B or subcategory, for the first type the training course the course must be instructor led and face to face, unless otherwise authorised by the CAA.

(d) 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~~ evaluation 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 mustshall 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 mustshall be at the category B1 or B2 level.

(da) By derogation from points (b) and (d) and only during the first 30 months after a new aircraft type has received its type certificate, an AML may be endorsed with the corresponding aircraft type rating for a given (sub)category based on complete training

delivered by the manufacturer, including the on-site practical training element, under the condition that the aircraft type rating is not the first aircraft endorsed for that (sub)category.

Such training must be carried out at a level and duration that meet the same objectives as those of points 5 (a), (b) and (c) of Appendix III, and must cover relevant maintenance data at the required knowledge level and scope for the AML (sub)category.

A responsible person of the aircraft manufacturer must issue a final report declaring fulfilment of the requirements of this point 66.A.45(da).

(e) For Group 2 aircraft:(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 mustshall 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 mustshall 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 must be subject to the following limitations, which shall will 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 2000 kg MTOM and below’ requires demonstration of practical experience, which mustshall 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 must be subject to the following limitations, which shall will be endorsed on the licence:

— wooden-structure aeroplanes,

— aeroplanes with metal-tubing structure covered with fabric,

— metal-structure aeroplanes,

— composite-structure aeroplanes.

(h) For all L licence subcategories, other than L5:

(i) the endorsement of ratings requires demonstration of practical experience which mustshall include a representative cross section of maintenance activities relevant to the licence subcategory;

(ii) unless the applicant provides evidence of appropriate experience, the ratings mustshall be subject to the following limitations, which shall will 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 mustshall 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 2000 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.~~

0201.09 Intent of proposed changes – 66.A.45

Point (c) is amended to account for new aircraft and powerplants as referenced in the proposed wording for 66.A.3(b). OJT is required only for the first type on a licence however, if the first type comes under 66.A.3(b), then if the applicant wishes to work on aircraft under 66.A.3(a), they will need to conduct further OJT. This ensures that the engineer has sufficient experience on traditional types of aircraft and powerplant.

In point (c) there is also the addition for the requirement for a first type training course to be conducted face to face. This is because, in a first type course where you have not undertaken this type of training before, the limitations of distance learning are not providing sufficient training and knowledge to engineers. The CAA has received whistle blower complaints with concerns over competency of new engineers and concerns that distance learning is not effective. Further this helps to address concerns raised by CAA findings from auditing some distance learning courses. It is difficult for students to interact with the instructors and each other and provides a challenge for the Part 147 to ensure that the training environment of the trainee is conductive to learning.

This has also been a concern raised to the CAA by industry in both the training and maintenance environments at seminars. The CAA currently holds a risk for remote sites and distance learning because distance learning is not as effective as face-to-face learning. When the CAA did the industry seminar and requested a vote on distance learning, most voted it as not as effective as face to face.

Point (d) is amended to replace the term 'type examination' with 'type evaluation'. This intends to reduce confusion with the type (training) examination.

Point (da) is added to give the CAA the ability to add ratings to licences where a new Type Certificate is approved and there is less likely to be a Part 147 training provider approved to conduct training on that type. The training instead can be delivered by the aircraft manufacturer.

Point (h)(ii)(3) the last paragraph is deleted because the knowledge and experience required to extend a licence (sub)category are now specified in Appendix IV.

66.A.55 Evidence of qualification Licence handling and reporting by the holder

(a) Upon request by an authorised person, p~~P~~ersonnel exercising certification privileges as well as support staff must~~shall~~ produce their licence, as evidence of qualification, within 24 hours upon request by an authorised person. For holders of a physical licence, an identity document containing a photograph of the licence holder.

(b) The holder of the aircraft maintenance licence must report to the CAA the loss or theft of their licence issued in physical format.

(c) For aircraft maintenance licences issued in physical format, when the CAA has revoked, suspended, or limited the licence pursuant to point 66.B.500, the holder must return it to the CAA.

[...]

0201.10 - Intent of proposed changes – 66.A.55
For point (a), the addition for the identity document is because the requirement to produce identification was originally seen as incorporated in the Form 26. This form is proposed for removal under RMT 0193 and therefore the CAA still needs the ability to enforce the need to see ID with a physical licence. This is because the physical licence does not contain a photograph of the licence holder which the digital licence will hold. Point (b) is proposed to ensure that stolen or lost physical licences are reported to the CAA. This helps the CAA track and monitor potential fraud cases. Point (c) ensures that when physical licences need to be amended, for example a limitation applied or the licence revoked, the physical format is removed from circulation so that the invalid licence can no longer be used.

66.A.70 Conversion provisions

(a) The holder of a BCAR licence may be issued an aircraft maintenance licence in accordance with this Annex (Part-66) by the CAA without further examination subject to the conditions specified in Section B Subpart D.

(b) Where necessary, the aircraft maintenance licence must contain limitations in accordance with point 66.A.50 to reflect the differences between:

(i) the scope of the certifying staff qualification valid to the applicable licence category or subcategory provided for in this Annex (Part-66); [and]

(ii) the basic knowledge requirements and the basic examination standards laid down in Appendices I and II to this Annex (Part-66).

(c) By derogation from point (b), for aircraft not used by licenced air carriers in accordance with UK Regulation (EC) No 1008/2008, other than complex motor-powered aircraft, and for balloons, sailplanes, motor-powered sailplanes and airships, the aircraft maintenance licence must contain limitations in accordance with point 66.A.50 to ensure that the BCAR certifying staff privileges of the applicable Part-66 licence category or subcategory and those of the converted Part-66 aircraft maintenance licence remain the same.

0201.11 – Intent of Proposed Changes - 66.A.70
When the CAA left EASA 66.A.70 Conversion Provisions was deleted from the regulation however, references to it throughout the regulation were not deleted and no legal premise was reintroduced to the rule to allow the CAA to convert BCAR licences to Part 66 licences, with the applicable limitations added. As the limitations applied on conversion from BCAR are not the same as those available in the rule under 66.A.50 which are applied to Part 66 licences, the UK CAA are looking reinstate the ability to add BCAR licence privileges to a Part 66 licence. In order to do this, the CAA needs the ability within the rule to do so and add the required limitations. These limitations are different to those under 66.A.50 because of the differences between training for a BCAR licence and a Part 66 licence. Further the references to 66.A.70 remain within the regulation and currently there is no rule that can be referenced in its place.

The proposed wording is based on the original 66.A.70 which was removed from the regulation.

SECTION B - PROCEDURES FOR THE CAA

Subpart B - Issue of an Aircraft Maintenance Licence

This Subpart provides the procedures to be followed by the CAA to issue, change or continue an aircraft maintenance licence.

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

(a) A maintenance organisation approved in accordance with Annex II (Part-145) or Annex Vd (Part-CAO), when authorised to carry out this activity by the CAA, may ~~(i) prepare the aircraft maintenance licence on behalf of the CAA or (ii)~~ make recommendations to the CAA regarding the application from an individual for a aircraft maintenance licence so that the CAA may prepare and issue such licence.

(b) Maintenance organisations referred to in point (a) must~~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 CAA.

0201.12 – Intent of proposed changes – 66.B.105
The title is proposed for amendment to reflect the changes to the text in point (a). Point (a) is amended to clarify that only the CAA can prepare licences however, the CAA wishes to retain the ability for Part 145's (and extend this to Part-CAO's) to recommend an individual for a licence.

66.B.110 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 CAA mustshall endorse the additional basic category, subcategory or, for category B2L, system rating(s) on the aircraft maintenance licence by stamp and signature or mustshall reissue the licence.

(b) The record system of the CAA mustshall be changed accordingly.

(c) Upon request by the applicant, the CAA mustshall 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 2000 kg MTOM and below', the CAA shall issue, upon application, a fully rated licence in subcategories L1 and L2, with the same limitations as the B1.2/B3 licence held.~~The experience and basic knowledge modules or part modules required for adding a new licence category or subcategory to an existing licence issued in accordance with this Annex are outlined in the tables of Appendix IV.

0201.13 – Intent of proposed changes – 66.B.110
It is proposed to remove the conditions for B1.2 and B3 to obtain an L2 licence as the knowledge and experience required to extend a licence (sub)category are now specified in Appendix IV.

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

(a) The CAA mustshall compare the holder's aircraft maintenance licence with the competent authority CAA records and verify any pending revocation, suspension, limit or change action pursuant to point 66.B.500. If the documents are identical information is correct and no action is pending pursuant to point 66.B.500, the holder's copy licence mustshall be renewed for 5 years and the file endorsed accordingly.

(b) If the CAA records are different from the aircraft maintenance licence held by the licence holder: Following review pursuant to point 66.B.120(a), when an aircraft maintenance licence is found to be different from the records referred to in point 66.B.20, the CAA must:

1. amend the licence as required.

2. the CAA mustshall investigate the reasons for such differences and may choose not to renew the aircraft maintenance licence.

2.3. the CAA mustshall inform the licence holder and any known maintenance organisation approved in accordance with Annex I (Part-M) Subpart F or Annex II (Part-145) or Annex Vd (Part-CAO). that may be directly affected of such fact.

3.4. the CAA mustshall, if necessary, take action in accordance with point 66.B.500 to revoke, suspend or change the licence in question.

0201.14 – Intent of proposed changes 66.B.110
Point 66.A.120 has been amended to account for the electronic licence renewal. For physical licences the CAA records are compared with the returned physical licence. On the renewal of an electronic licence, the data on the licence application should be compared to the current licence and the information the CAA holds on the individual. The word 'limit' has been added to point (a) as this should have been incorporated here previously.

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 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 CAA must~~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 CAA in all cases. The 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).

(c) The Certificate of Recognition (CoR) (CAA Form 149b) of Appendix III to Annex IV (Part 147) must be used for the recognition of completion of either the theoretical elements, the practical elements or both the theoretical and practical elements of the type rating training course.

0201.15 – Intent of proposed changes – 66.B.130
Point (c) is added to allow for the addition of a separate CofR (Form 149b) for type training approved for an organisation not approved in accordance with Part 147. These courses are conducted when there is not sufficient need for a Part 147 permanent approval and the course will be conducted by an organisation holding a maintenance approval rather than a training approval. Note this is not the same as the EASA 148b which is also used for recognition of examinations by another competent state authority.

66.B.135 Procedure for the approval of multimedia-based training (MBT) courses

The CAA, whenever it approves courses, including multimedia-based training (MBT) courses, which are delivered in a physical environment or virtual environment or both, must verify that the aircraft basic training and the aircraft type training comply with Appendix I and Appendix III respectively.

The approval procedure must include the principles and criteria of Appendix IX.

0201.16 – Intent of proposed changes – 66.B.135
The new point 66.B.135 ‘Procedure for the approval of multimedia-based training (MBT) courses’ is proposed to be added. This follows the introduction MBT to the training environment and requires the CAA to develop a procedure for the approval of MBT courses based on the new training methods and teaching technologies, conducted either in a physical, virtual or hybrid environment.

Subpart C - Examinations

This Subpart provides the procedures to be followed for the examinations conducted by the CAA.

66.B.200 Examination by the CAA

(a) All examination questions mustshall 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 CAA mustshall nominate:

1. persons who control the questions to be used for each examination;

2. examiners who mustshall be present during all examinations to ensure the integrity of the examination.

(c) Basic examinations mustshall 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 mustshall follow the standard specified in Appendix III to this Annex (Part-66).

(e) New essay questions mustshall be raised at least every 6 months and questions already used withdrawn or rested from use. A record of the questions used mustshall be retained in the records for reference.

(f) All examination papers mustshall 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 documents paper may be available to the candidate during the examination.

(h) Examination candidates mustshall 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.

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

0201.17 – Intent of Proposed Changes - 66.B.200
Point (g) amended to reflect that not all examinations are completed on paper but may be on a secure computer.

Subpart E - Examination Credits

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

0201.18 – Intent of proposed changes – Subpart E
Reference amended to reflect proposed changes to 66.A.25.

66.B.405 Examination credit report

(a) The credit report mustshall 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 must state whether compliance has been demonstrated and contain the justifications for each statement and the possible conditions or additional considerations, or both.

[...]

(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 CAA mustshall 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 CAA mustshall also assess if changes to the credit report are consequently required. Such changes mustshall be documented, dated and recorded.

0201.19 – Intent of proposed changes - 66.B.405
66.B.405 is amended to refer to 'must' instead of 'shall' to align with other Annexes. Point (a) is amended to provide clarity on the requirements of the comparison in the credit report.

Subpart F - Continuing Oversight

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

(a) The CAA mustshall 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:

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 a certificate of release to service while not in compliance with this Regulation.

9. making unauthorised entries in the aircraft maintenance licence.

(b) For CAA licences issued in electronic format, the CAA must establish and implement a procedure for the revocation, suspension, or limitation of such licences.

(c) When the holder of an aircraft maintenance licence has reported the loss or theft of their current licence issued in physical format, the CAA must revoke it and issue a new licence to the holder on the basis of the records mentioned in point 66.B.20(c).

(d) Where the CAA has taken action to suspend, limit or revoke a licence, they must inform the licence holder and any known maintenance organisation approved in accordance with Annex I (Part-M) Subpart F or Annex II (Part-145) or Annex Vd (Part-CAO) that may be directly affected by such fact.

0201.20 – Intent of proposed changes – 66.B.500

Point 66.B.500(a)(9) is proposed to be added to require the CAA to act upon licences whose content has not been issued or amended by them (in such case, the wording remains generic and includes licences issued in electronic format, should they also be subject to such risks). The requirement to keep a licence in good condition, and not make unauthorised entries is included in point 8 to Appendix VI to Part 66.

Point 66.B.500(b) is proposed to be added to require the CAA to establish and implement a procedure for the revocation, suspension or limitation of valid aircraft maintenance licences issued in electronic format.

Point 66.B.500(c) is proposed to be added to require action by the CAA once the licence holder has reported the loss or theft of their current licence issued in physical format.

These amendments will mitigate the risk of a licence being used while it has been stolen, limited, suspended, or revoked.

Point 66.B.500(d) has been added to align with 66.B.120(b)(4) and ensure that the licence holder and employing maintenance organisation are aware of such changes to the licence.

Appendices to Annex III (Part-66)

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 mustshall 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.

(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.

2. Modularisation

Qualification on basic subjects for each aircraft maintenance licence category or subcategory mustshall be in accordance with the following matrix, where applicable subjects are indicated by an 'X'., while 'n/a' means that the subject module is neither applicable nor required.

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 2000 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
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~~	~~-~~
~~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~~	~~-~~	~~-~~

Editorial note: Split out subcategories, bought in B2 and B2L from table2 and added module titles.

	Subject module	B1.1 A1 Turbine engine	B1.2 A2 Piston engine	B1.E Aeroplanes with electric power plant and MTOM below 5 700 kg	B1.3 A3 Turbine engine	B1.4 A4 Piston engine	B3 Piston-engine non-pressurised aeroplanes MTOM ≤ 2 t	B2	B2L	C

1.	MATHEMATICS	X	X	x	X	X	X	X	X	X
2.	PHYSICS	X	X	x	X	X	X	X	X	X
3.	ELECTRICAL FUNDAMEN- TALS	X	X	x	X	X	X	X	X	X
4.	ELECTRONICS FUNDAMENTALS	X (n/a for A1)	X (n/a for A2)	x	X (n/a for A3)	X (n/a for A4)	X	X	X	X
5.	DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYS- TEMS	X	X	x	X	X	X	X	X	X
6.	MATERIALS AND HARDWARE	X	X	x	X	X	X	X	X	X
7.	MAINTENANCE PRACTICES	X	X	x	X	X	X	X	X	X
8.	BASIC AERODYNAMICS	X	X	x	X	X	X	X	X	X
9.	HUMAN FACTORS	X	X	x	X	X	X	X	X	X
10.	AVIATION LEGISLATION	X	X	x	X	X	X	X	X	X
11.	AEROPLANE AERODY- NAMICS, STRUCTURES AND SYSTEMS	X	X	x	n/a	n/a	X	n/a	n/a	11, 15 & 17 as B1.1 or 11, 16 & 17 as B1.2 or 12 & 15 as B1.3 or 12 & 16 as B1.4 or 13 & 14 as B2
12.	HELICOPTER AERODY- NAMICS, STRUCTURES AND SYSTEMS	n/a	n/a	n/a	X	X	n/a	n/a	n/a	
13.	AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS	n/a	n/a	n/a	n/a	n/a	n/a	X	X	

14.	PROPULSION	n/a	n/a	n/a	n/a	n/a	n/a	X	X	
15.	GAS TURBINE ENGINES	X	n/a	n/a	X	n/a	n/a	n/a	n/a	
16.	PISTON ENGINE	n/a	X	n/a	n/a	X	X	n/a	n/a	
17.	PROPELLER	X	X	x	n/a	n/a	X	n/a	n/a	
18.	ELECTRIC POWER PLANT	n/a	n/a	x	n/a	n/a	n/a	n/a	n/a	

0201.21.01 – Intent of proposed changes - Appendix I to Part 66

Point 2

- Wording is amended to reflect the new table layout.
- The two tables are combined as well as the amendment to incorporate the B1.E

MODULE 1 - MATHEMATICS

~~MODULE 1 - MATHEMATICS~~	~~LEVEL~~			
	~~A~~	~~B1~~	~~B2B2L~~	~~B3~~
~~1.1 Arithmetic~~	~~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, square and cube roots.~~				
~~1.2 Algebra~~	~~1~~	~~2~~	~~2~~	~~2~~
~~(a) Evaluating simple algebraic expressions, addition, subtraction, multiplication and division, use of brackets, simple algebraic fractions;~~				
~~(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 Geometry~~	—	~~1~~	~~1~~	~~1~~

~~(a) Simple geometrical constructions;~~				
~~(b) Graphical representation; nature and uses of graphs, graphs of equations/functions;~~	~~2~~	~~2~~	~~2~~	~~2~~
~~(c) Simple trigonometry; trigonometrical relationships, use of tables and rectangular and polar coordinates.~~	~~—~~	~~2~~	~~2~~	~~2~~

MODULE 1. MATHEMATICS	LEVEL	
	A	B1 B2 B2L B3
1.1 *Arithmetic*	1	2
1.2 *Algebra* (a) Simple algebraic expressions; (b) Equations.	1	2
	—	1
1.3 *Geometry* (a) Simple geometrical constructions;	—	1
(b) Graphical representation;	2	2
(c) Trigonometry.	—	2

0201.21.2 – Intent of proposed changes - Appendix I to Part 66

The module syllabus' have been changed to account for the following:

The module syllabus description has been moved to AMC.

Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 1. MATHEMATICS B1, B2 and B3 have been merged because they are identical.

MODULE 2 – PHYSICS

MODULE 2 - PHYSICS	**LEVEL**			
	A **B3**	**B1** **B2** **B2L**	**~~B2B2L~~**	**~~B3~~**
2.1 Matter ~~Nature of matter: the chemical elements, structure of atoms, molecules;~~ ~~Chemical compounds;~~ ~~States: solid, liquid and gaseous;~~ ~~Changes between states.~~	1	~~1~~ 2	~~1~~	~~1~~
2.2 Mechanics 2.2.1 Statics ~~Forces, moments and couples, representation as vectors;~~ ~~Centre of gravity;~~ ~~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).~~	1	2	~~1~~	~~1~~
2.2.2 Kinetics ~~Linear movement: uniform motion in a straight line, motion under constant acceleration (motion under gravity);~~ ~~Rotational movement: uniform circular motion (centrifugal/centripetal forces);~~	1	2	~~1~~	~~1~~

~~Periodic motion: pendular movement;~~				
~~Simple theory of vibration, harmonics and resonance;~~				
~~Velocity ratio, mechanical advantage and efficiency.~~				
2.2.3 Dynamics				
(a) Mass, force and Energy ~~Mass; Force, inertia, work, power, energy (potential, kinetic and total energy), heat, efficiency;~~	1	2	~~1~~	~~1~~
(b) Momentum and conservation of momentum ~~Momentum, conservation of momentum; Impulse;~~ ~~Gyroscopic principles;~~ ~~Friction: nature and effects, coefficient of friction (rolling resistance).~~	1	2	~~2~~	~~1~~
2.2.4 Fluid dynamics				-
(a) Gravity and density ~~Specific gravity and density;~~	2	2	~~2~~	~~2~~
(b) Viscosity; compressibility on fluids; static, dynamic, and total pressure.~~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 Thermodynamics			-	-
(a) Temperature~~: thermometers and temperature scales: Celsius, Fahrenheit and Kelvin; Heat definition;~~	2	2	~~2~~	~~2~~
(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.~~	~~—~~ 1	2	~~2~~	~~1~~
2.4 Optics (Light)	—	2	~~2~~	—
~~Nature of light; speed of light;~~ ~~Laws of reflection and refraction: reflection at plane surfaces, reflection by spherical mirrors, refraction, lenses;~~ ~~Fibre optics.~~				
2.5 Wave Motion and Sound	—	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.~~				

0201.21.3 – Intent of proposed changes - Appendix I to Part 66

The module syllabus' have been changed to account for the following:

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MODULE 2. PHYSICS A has been upgraded to match the B3 level; - B2 and B2L have been upgraded to match the B1 level.

MODULE 3 - ELECTRICAL FUNDAMENTALS

MODULE 3 - ELECTRICAL FUNDAMENTALS	**LEVEL**			
	A	**B1 B2 B2L**	**~~B2B2L~~**	**B3**
3.1 Electron Theory ~~Structure and distribution of electrical charges within: atoms, molecules, ions, compounds; Molecular structure of conductors, semiconductors and insulators.~~	1	1	~~1~~	1
3.2 Static Electricity and Conduction ~~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.~~	1	2	~~2~~	1
3.3 Electrical Terminology ~~The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.~~	1	2	~~2~~	1

3.4 Generation of Electricity ~~Production of electricity by the following methods: light, heat, friction, pressure, chemical action, magnetism and motion.~~	1	1	~~1~~	1
3.5 DC Sources of Electricity ~~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.~~	1	2	~~2~~	2
3.6 DC Circuits ~~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.~~	~~—~~1	2	~~2~~	1
3.7 Resistance/Resistor (a) Resistance ~~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;~~	—	2	~~2~~	1
~~Operation and use of potentiometers and rheostats;~~ ~~Operation of Wheatstone Bridge;~~ (b) Resistors ~~Positive and negative temperature coefficient conductance;Fixed resistors, stability, tolerance and limitations, methods of construction;~~ ~~Variable resistors, thermistors, voltage dependent resistors;~~ ~~Construction of potentiometers and rheostats;~~ ~~Construction of Wheatstone Bridge.~~	—	1	~~1~~	—
3.8 Power ~~Power, work and energy (kinetic and potential); Dissipation of power by a resistor; Power formula;~~ ~~Calculations involving power, work and energy.~~	—	2	~~2~~	1
3.9 Capacitance/Capacitor ~~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~~	—	2	~~2~~	1

~~voltage in series and parallel circuits; Exponential charge and discharge of a capacitor, time constants; Testing of capacitors.~~				
3.10 Magnetism (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;~~	—	2	~~2~~	1
~~Electromagnets construction and principles of operation;~~ ~~Hand clasp rules to determine: magnetic field around current carrying conductor;~~ (b) Magnetomotive force ~~Magnetomotive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents;Precautions for care and storage of magnets.~~	—	2	~~2~~	1
3.11 Inductance/Inductor ~~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 determining rules;~~ ~~Back emf, self induction;~~ ~~Saturation point;~~ ~~Principle uses of inductors.~~	—	2	~~2~~	1
3.12 DC Motor/Generator Theory ~~Basic motor and generator theory;~~ ~~Construction and purpose of components in DC generator;~~	—	2	~~2~~	1

~~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 ~~Sinusoidal waveform: phase, period, frequency, cycle;~~ ~~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.~~	1	2	~~2~~	1
3.14 Resistive (R), Capacitive (C) and Inductive (L) Circuits ~~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.~~	—	2	~~2~~	1
3.15 Transformers ~~Transformer construction 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.~~	—	2	~~2~~	1
3.16 Filters ~~Operation, application and uses of the following filters:~~ ~~low pass, high pass, band pass, band stop.~~	—	1	~~1~~	—
3.17 AC Generators ~~Rotation of loop in a magnetic field and waveform produced;~~ ~~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.~~	—	2	~~2~~	1

3.18 AC Motors ~~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.~~	—	2	~~2~~	1

0201.21.4 – Intent of proposed changes - Appendix I to Part 66
The module syllabus' have been changed to account for the following: The module syllabus description has been moved to AMC. Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4. MODULE 3. ELECTRICAL FUNDAMENTALS - B1 and B2 and B2L have been merged because they are identical; - For A, 3.6 has been added.

MODULE 4 - ELECTRONIC FUNDAMENTALS

MODULE 4 - ELECTRONIC FUNDAMENTALS	**LEVEL**			
	A	**B1** **B3**	**B2** **B2L**	~~**B3**~~
4.1 Semiconductors 4.1.1 Diodes (a) Description and characteristics;	—	2	2	~~1~~

~~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.~~				
(b) Operation and function. ~~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, 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.~~	—	—	2	—
4.1.2 Transistors (a) Description and characteristics ~~Transistor symbols;~~ ~~Component description and orientation;~~ ~~Transistor characteristics and properties.~~	—	1	2	~~1~~
(b) Construction and operation ~~of PNP and NPN transistors; 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.~~	—	—	2	—
4.1.3 Integrated Circuits (a) Basic description and operation; ~~Description and operation of logic circuits and linear circuits/operational amplifiers;~~	—	1	2	~~1~~
(b) Description and operation.	—	—	2	—

~~Description and operation of logic circuits and linear circuits; Introduction to operation 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.~~				
4.2 Printed Circuit Boards ~~Description and use of printed circuit boards.~~	—	1	2	—
4.3 Servomechanisms (a) Principles; ~~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 components/features: resolvers, differential, control and torque, transformers, inductance and capacitance transmitters;~~	—	1	—2	—
(b)Construction, operation, and use. ~~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.~~	—	—	2	—

0201.21.5 – Intent of proposed changes - Appendix I to Part 66

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MODULE 4. ELECTRONICS FUNDAMENTALS - Knowledge levels for B3 have been upgraded to match the B1 levels.

MODULE 5 - DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

Editorial Notes:

Space added to between B2 and B2L, in the current version it is not clear they are separate.

MODULE 5 - DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS	LEVEL				
	A	~~B1-1B1-3~~ B3	~~B1-2B1-4~~ B1	B2 B2L	~~B3~~
5.1 Electronic instrument systems ~~Electronic Instrument Systems Typical systems arrangements and cockpit layout of electronic instrument systems.~~	1	1	~~2~~ 1	~~3~~ 1	~~1~~
5.2 Numbering Systems ~~Numbering systems:~~ ~~binary, octal and hexadecimal;~~ ~~Demonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa.~~	—	-	1	2	—
5.3 Data Conversion ~~Analogue Data, Digital Data;~~ ~~Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types.~~	—	-	1	2	—
5.4 Data Buses ~~Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications.~~ ~~Aircraft Network/Ethernet.~~	—	-	— 2	2	—
5.5 Logic Circuits (a) Identification and applications; ~~Identification of common logic gate symbols, tables and equivalent circuits;~~	—	—	— 2	2	—

~~Applications used for aircraft systems, schematic diagrams.~~					
(b) Interpretation of logic diagrams.	—	—	—	2	—
5.6 Basic Computer Structure (a) Computer terminology and technology; ~~Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); Computer technology (as applied in aircraft systems).~~	1	1	2	2	—
(b)Computer operation. ~~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.~~	—	—	—	2	—
5.7 Microprocessors ~~Microprocessors 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.~~	—	—	—	2	—
5.8 Integrated Circuits ~~Operation and use of encoders and decoders;~~ ~~Function of encoder types;~~ ~~Uses of medium, large and very large scale integration.~~	—	—	—	2	—
5.9 Multiplexing ~~Multiplexing Operation,~~ ~~application and identification in logic diagrams of multiplexers and demultiplexers.~~	—	—	—	2	—
5.10 Fibre Optics ~~Advantages and disadvantages of fibre optic data transmission over electrical wire propagation;~~ ~~Fibre optic data bus;~~	—	-	1	2	—

~~Fibre optic related terms;~~ ~~Terminations;~~ ~~Couplers, control terminals, remote terminals;~~ ~~Application of fibre optics in aircraft systems.~~					
5.11 Electronic Displays ~~Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.~~	~~—~~1	1	2	2	—
5.12 Electrostatic Sensitive Devices ~~Electrostatic Sensitive Devices Special handling of components sensitive to electrostatic discharges;~~ ~~Awareness of risks and possible damage, component and personnel anti-static protection devices.~~	1	1	2	2	—
5.13 Software Management Control ~~Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes.~~	—	1	2	2	—
5.14 Electromagnetic Environment ~~Influence of the following phenomena on maintenance practices for electronic system:EMC Electromagnetic Compatibility~~ ~~EMI Electromagnetic Interference~~ ~~HIRF High Intensity Radiated Field~~ ~~Lightning/lightning protection.~~	—	1	2	2	—
5.15 Typical Electronic/Digital Aircraft Systems ~~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~~	~~—~~1	1	~~2~~1	1~~2~~	—

~~IRS-Inertial Reference System;~~ ~~(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.~~					

0201.21.6 – Intent of proposed changes - Appendix I to Part 66
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MODULE 6 - MATERIALS AND HARDWARE

MODULE 6 - MATERIALS AND HARDWARE	LEVEL			
	A	B1 B3	B2 B2L	~~B3~~
6.1 Aircraft Materials — Ferrous (a) Alloy steels used in aircraft; ~~Characteristics, properties and identification of common alloy steels used in aircraft;~~ ~~Heat treatment and application of alloy steels.~~	1	2	1	~~2~~
(b) Testing of ferrous materials; ~~Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.~~	—	1	1	~~1~~
(c) Repair and inspection procedures.	-	2	1	
6.2 Aircraft Materials — Non-Ferrous (a) Characteristics; ~~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 materials; ~~Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.~~	—	1	1	~~1~~
(c) Repair and inspection procedures.	-	2	1	
6.3 Aircraft Materials — Composite and Non-Metallic				-
6.3.1 Composite and non-metallic other than wood and fabric (a) Characteristics; ~~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) Detection of defects ~~The detection of defects/deterioration in composite and non-metallic material; Repair of composite and non-metallic material.~~	1	2	—	~~2~~
(c) Repairs and inspection procedures	-	2	1	
6.3.2 Wooden structures ~~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.~~	1	~~2~~1	—	~~2~~
6.3.3 Fabric covering	~~1~~ --	1	—	~~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 Corrosion (a) Chemical fundamentals; ~~Formation by, galvanic action process, microbiological, stress;~~	1	1	1	~~1~~
(b) Types of corrosion. ~~Types of corrosion and their identification; Causes of corrosion;~~ ~~Material types, susceptibility to corrosion.~~	2	3	2	~~2~~
6.5 Fasteners 6.5.1 Screw threads ~~Screw nomenclature;~~ ~~Thread forms, dimensions and tolerances for standard threads used in aircraft;~~ ~~Measuring screw threads.~~	2	2	2	~~2~~
6.5.2 Bolts, studs and screws ~~Bolt types: specification, identification and marking of aircraft bolts, international standards;~~ ~~Nuts: self locking, anchor, standard types;~~ ~~Machine screws: aircraft specifications;~~ ~~Studs: types and uses, insertion and removal;~~ ~~Self tapping screws, dowels.~~	2	2	2	~~2~~
6.5.3 Locking devices ~~Tab and spring washers, locking plates, split pins, pal nuts, wire locking, quick release fasteners, keys, circlips, cotter pins.~~	2	2	2	~~2~~
6.5.4 Aircraft rivets ~~Types of solid and blind rivets: specifications and identification, heat treatment.~~	1	2	1	~~2~~
6.6 Pipes and Unions (a) Identification; ~~Identification of, and types of rigid and flexible pipes and their connectors used in aircraft;~~	2	2	2	~~2~~
(b) Standard unions; ~~Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.~~	2	2	1	~~2~~
6.7 Springs	—	2	1	~~1~~

~~Types of springs, materials, characteristics and applications.~~				
6.8 Bearings ~~Purpose of bearings, loads, material, construction;~~ ~~Types of bearings and their application.~~	1	2	2	~~1~~
6.9 Transmissions ~~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.~~	1	2	2	~~1~~
6.10 Control Cables ~~Types of cables;~~ ~~End fittings, turnbuckles and compensation devices;~~ ~~Pulleys and cable system components;~~ ~~Bowden cables;~~ ~~Aircraft flexible control systems.~~	1	2	1	~~2~~
6.11 Electrical Cables and Connectors ~~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.~~	1	2	2	~~2~~

0201.21.7 – Intent of proposed changes - Appendix I to Part 66

The module syllabus' have been changed to account for the following:

The module syllabus description has been moved to AMC.

Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence

(sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 6. MATERIALS AND HARDWARE:

Added: (c) Repair and inspection procedures.

B1 and B3 have been merged.

MODULE 7~~A~~ - MAINTENANCE PRACTICES

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

Editorial Notes:

Space added between B2 and B2L as this was not previously clear.

Note A from 7A deleted as the two tables are combined.

MODULE 7~~A~~ - MAINTENANCE PRACTICES	LEVEL		
	A	B1 B3	B2B2L
7.1 Safety Precautions-Aircraft and Workshop ~~Aspects of safe working practices including precautions to take when working with 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.~~	3	3	3
7.2 Workshop Practices ~~Care of tools, control of tools, use of workshop materials;~~ ~~Dimensions, allowances and tolerances, standards of workmanship;~~ ~~Calibration of tools and equipment, calibration standards~~.	3	3	3
7.3 Tools ~~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.~~	3	3	3

7.4 Potential safety hazards when working with electrical systems and protective equipment. ~~Avionic General Test Equipment~~ ~~Operation, function and use of avionic general test equipment.~~	~~—~~3	~~2~~3	~~3~~3
7.5 Engineering Drawings, Diagrams and Standards ~~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.~~	1	2	2
7.6 Fits and Clearances ~~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.~~	1	2	1
7.7 Electrical Wiring Interconnection System (EWIS) ~~Electrical Wiring Interconnection System (EWIS) 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.~~	1	3	3
7.8 Riveting ~~Riveted joints, rivet spacing and pitch;~~ ~~Tools used for riveting and dimpling;~~ ~~Inspection of riveted joints.~~	1	2	—
7.9 Pipes and Hoses ~~Bending and belling/flaring aircraft pipes;~~ ~~Inspection and testing of aircraft pipes and hoses;~~	1	2	—

~~Installation and clamping of pipes.~~			
7.10 Springs ~~Inspection and testing of springs.~~	1	2	—
7.11 Bearings ~~Testing, cleaning and inspection of bearings;~~ ~~Lubrication requirements of bearings;~~ ~~Defects in bearings and their causes.~~	1	2	—
7.12 Transmissions ~~Inspection of gears, backlash;~~ ~~Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.~~	1	2	—
7.13 Control Cables ~~Swaging of end fittings;~~ ~~Inspection and testing of control cables;~~ ~~Bowden cables; aircraft flexible control systems.~~	1	2	—
7.14 Material handling 7.14.1 Sheet Metal ~~Marking out and calculation of bend allowance;~~ ~~Sheet metal working, including bending and forming;~~ ~~Inspection of sheet metal work.~~	—	2	—
7.14.2 Composite and non-metallic ~~Bonding practices;~~ ~~Environmental conditions;~~ ~~Inspection methods.~~	—	2	—
7.14.3 Additive manufacturing	1	1	1
7.15 (Reserved) ~~Welding, Brazing, Soldering and Bonding~~ ~~(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 Aircraft Weight and Balance (a) Centre-of-gravity calculation; ~~Centre of Gravity/Balance limits calculation: use of relevant documents;~~	—	2	2
(b) Aircraft weighing.	—	2	—

~~Preparation of aircraft for weighing;Aircraft weighing.~~			
7.17 Aircraft Handling and Storage ~~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.~~	2	2	2
7.18 Disassembly, Inspection, Repair and Assembly Techniques (a) Types of defects and visual inspection techniques; ~~Corrosion removal, assessment and reprotection;~~	2	3	3
(b)General repair methods, Structural Repair Manual; ~~Ageing, fatigue and corrosion control programmes;~~	—	2	—
(c) Non-destructive inspection techniques; ~~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 Abnormal Events (a) Inspections following lightning strikes and HIRF penetration;	2	2	2
(b) Inspections following abnormal events such as heavy landings and flight through turbulence.	2	2	—
7.20 Maintenance Procedures ~~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.~~	1	2	2
7.21 Documentation & communication	1	2	2

Editorial Note: Module 7B removed because B3 is now combined in the table above.

~~MODULE 7B - MAINTENANCE PRACTICES~~

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

MODULE 7B - MAINTENANCE PRACTICES	LEVEL B3
7.1 Safety Precautions Aircraft and Workshop Aspects of safe working practices including precautions to take when working with 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.	3
7.2 Workshop Practices Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship; Calibration of tools and equipment, calibration standards.	3
7.3 Tools 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.	3
7.4 Avionic General Test Equipment Operation, function and use of avionic general test equipment.	1
7.5 Engineering Drawings, Diagrams and Standards 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.	2
7.6 Fits and Clearances 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.	2
7.7 Electrical Cables and Connectors Continuity, insulation and bonding techniques and testing; Use of crimp tools: hand and hydraulic operated;	2

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 Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints.	2
7.9 Pipes and Hoses Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes.	2
7.10 Springs Inspection and testing of springs.	2
7.11 Bearings Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.	2
7.12 Transmissions Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.	2
7.13 Control Cables Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.	2
7.14 Material handling 7.14.1 Sheet Metal Marking out and calculation of bend allowance; Sheet metal working, including bending and forming; Inspection of sheet metal work.	2
7.14.2 Composite and non-metallic	2

Bonding practices; Environmental conditions; Inspection methods.	
7.15 Welding, Brazing, Soldering and Bonding (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 Aircraft Weight and Balance (a) Centre of Gravity/Balance limits calculation: use of relevant documents;	2
(b) Preparation of aircraft for weighing;Aircraft weighing.	2
7.17 Aircraft Handling and Storage 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.	2
7.18 Disassembly, Inspection, Repair and Assembly Techniques (a) Types of defects and visual inspection techniques; Corrosion removal, assessment and reprotection;	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 Abnormal Events	-
(a) Inspections following lightning strikes and HIRF penetration.	2
(b) Inspections following abnormal events such as heavy landings and flight through turbulence.	2
7.20 Maintenance Procedures Maintenance planning; Modification procedures; Stores procedures; Certification/release procedures; Interface with aircraft operation; Maintenance Inspection/Quality Control/Quality Assurance;	2

~~Additional maintenance procedures;~~ ~~Control of life limited components.~~	

0201.21.8 – Intent of proposed changes - Appendix I to Part 66

The module syllabus' have been changed to account for the following:

The module syllabus description has been moved to AMC.

Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 7. MAINTENANCE PRACTICES - M7A and M7B have been merged. B3 has been upgraded to B1. This enables the conversion from a B3.

7.14.3 'Additive manufacturing' has been added.

7.15 has been removed as these skills are specialist and can be gained via separate qualifications.

7.21 'Documentation & communication': this new chapter is inserted to show compliance with 66.A.20(b)4.

MODULE 8 - BASIC AERODYNAMICS

MODULE 8 - BASIC AERODYNAMICS	LEVEL			
	A B3	B1 B2 B2L	~~B2B2L~~	~~B3~~
8.1 Physics of the Atmosphere	1	2	~~2~~	~~1~~

~~International Standard Atmosphere (ISA), application to aerodynamics.~~				
8.2 Aerodynamics ~~Airflow around a body;~~ ~~Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation;~~ ~~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.~~	1	2	~~2~~	~~1~~
8.3 Theory of Flight ~~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;~~ ~~Lift augmentation.~~	1	2	~~2~~	~~1~~
8.4 High-speed airflow	1	2		
8.45 Flight Stability and Dynamics ~~Longitudinal, lateral and directional stability (active and passive).~~	1	2	~~2~~	~~1~~

0201.21.09 – Intent of proposed changes - Appendix I to Part 66

The module syllabus' have been changed to account for the following:

The module syllabus description has been moved to AMC.

Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the

change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 8. BASIC AERODYNAMICS

B3 has been upgraded to match the level of Category A.

B1 and B2/B2L have been merged because they are identical.

8.4 High-speed airflow' has been added.

MODULE 9~~A~~. HUMAN FACTORS

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

Editorial note: Module 9 tables are combined into one.

MODULE 9A. HUMAN FACTORS	**LEVEL**		
	~~A~~	**~~B1~~**	**~~B2B2L~~ ALL**
9.1 General ~~The need to take human factors into account;~~ ~~Incidents attributable to human factors/human error;~~ ~~'Murphy's' law.~~	~~1~~	~~2~~	2
9.2 Human Performance and Limitations ~~Vision;~~ ~~Hearing;~~ ~~Information processing;~~ ~~Attention and perception;~~ ~~Memory;~~ ~~Claustrophobia and physical access.~~	~~1~~	~~2~~	2

9.3 Social Psychology ~~Responsibility: individual and group;~~ ~~Motivation and de-motivation;~~ ~~Peer pressure;~~ ~~'Culture' issues;~~ ~~Team working;~~ ~~Management, supervision and leadership.~~	~~1~~	~~1~~	1
9.4 Factors Affecting Performance ~~Fitness/health;~~ ~~Stress: domestic and work related;~~ ~~Time pressure and deadlines;~~ ~~Workload: overload and underload;~~ ~~Sleep and fatigue, shiftwork;~~ ~~Alcohol, medication, drug abuse.~~	~~2~~	~~2~~	2
9.5 Physical Environment ~~Noise and fumes;~~ ~~Illumination;~~ ~~Climate and temperature;~~ ~~Motion and vibration;~~ ~~Working environment.~~	~~1~~	~~1~~	1
9.6 Tasks ~~Physical work;~~ ~~Repetitive tasks;~~ ~~Visual inspection;~~ ~~Complex systems.~~	~~1~~	~~1~~	1
9.7 Communication ~~Within and between teams;~~ ~~Work logging and recording;~~ ~~Keeping up to date, currency;~~ ~~Dissemination of information.~~	~~2~~	~~2~~	2

9.8 Human Error Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e. accidents); Avoiding and managing errors.	1	2	2
9.9 Safety Management Hazards in the Workplace Recognising and avoiding hazards; Dealing with emergencies.	1	2	2
9.10 The 'Dirty Dozen' and risk mitigation			2

MODULE 9B. HUMAN FACTORS

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

MODULE 9B. HUMAN FACTORS	LEVEL B3
9.1 General The need to take human factors into account; Incidents attributable to human factors/human error; 'Murphy's' law.	2
9.2 Human Performance and Limitations Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access.	2
9.3 Social Psychology Responsibility: individual and group; Motivation and de-motivation; Peer pressure; 'Culture' issues; Team working;	1

Management, supervision and leadership.	
9.4 Factors Affecting Performance Fitness/health; Stress: domestic and work related; Time pressure and deadlines; Workload: overload and underload; Sleep and fatigue, shiftwork; Alcohol, medication, drug abuse.	2
9.5 Physical Environment Noise and fumes; Illumination; Climate and temperature; Motion and vibration; Working environment.	1
9.6 Tasks Physical work; Repetitive tasks; Visual inspection; Complex systems.	1
9.7 Communication Within and between teams; Work logging and recording; Keeping up to date, currency; Dissemination of information.	2
9.8 Human Error Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e. accidents); Avoiding and managing errors.	2

~~9.9 Hazards in the Workplace~~ ~~Recognising and avoiding hazards;~~ ~~Dealing with emergencies.~~	~~2~~

0201.21.10 – Intent of proposed changes - Appendix I to Part 66
The module syllabus' have been changed to account for the following: The module syllabus description has been moved to AMC. Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4. MODULE 9. HUMAN FACTORS The title has been amended because there is no A/B version any longer. B1, B2 and B3 have been merged because they are identical. 9.9 'Safety management' has been added. 9.10 'The "Dirty Dozen" and risk mitigation' has been added.

MODULE 10. AVIATION LEGISLATION

MODULE 10. AVIATION LEGISLATION	LEVEL			
	A	B1 B2 B2L B3	~~B2~~B2L	~~B3~~
10.1 Regulatory Framework ~~Role of the International Civil Aviation Organisation;~~ ~~Role of the CAA;~~ ~~Role of the Secretary of State;~~ ~~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~~	1	1	~~1~~	~~1~~
10.2 Certifying Staff — Maintenance ~~Detailed understanding of Part 66.~~	2	2	~~2~~	~~2~~
10.3 Approved Maintenance Organisations ~~Detailed understanding of Part 145 and Part M Subpart F.~~	2	2	~~2~~	~~2~~
10.4 Independent Certifying Staff	-	3		
10.~~4~~5 Air operations ~~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~~6 Certification of aircraft, parts and appliances			-	-
~~(a) General~~ ~~General understanding of Part 21 and CAA certification specifications CS-23, 25, 27, 29.~~	~~—~~2	~~1~~2	~~1~~	~~1~~

~~(b) DocumentsCertificate 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~~7 Continuing airworthiness ~~Detailed understanding of Part 21 provisions related to continuing airworthiness.~~ ~~Detailed understanding of Part-M.~~	2	2	~~2~~	~~2~~
10.8 Oversight principles in continuing airworthiness	1	1		
10.~~7~~9 Maintenance and certification beyond the current UK regulations ~~Applicable National and International Requirements for~~ (if not superseded by ~~E~~UK requirements). ~~(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;~~	~~1 –~~	~~2~~1	~~–2~~	~~–2~~
~~(b) Continuing airworthiness; Minimum equipment requirements — Test flights;~~ ~~Only for B1 and B2 licences:~~ ~~ETOPS, maintenance and dispatch requirements;~~ ~~All Weather Operations, Category 2/3 operations.~~	~~—~~	~~1~~	~~1~~	~~1~~
10.10 Cybersecurity in aviation maintenance	1	1		

0201.21.11 – Intent of proposed changes - Appendix I to Part 66

The module syllabus' have been changed to account for the following:

The module syllabus description has been moved to AMC.

Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 10. AVIATION LEGISLATION

B1, B2, B2L and B3 have been merged because they are identical.

The following have been added:

10.4 'Independent certifying staff' has been added to increase awareness of scope and responsibilities of independent certifying staff.

10.8 Added to include 'Oversight principles in continuing airworthiness' has been added to increase awareness of the role of the regulator and its importance in the aviation system.

10.9 Amended to include 'Maintenance and certification beyond the current EU regulations (if not superseded by EU requirements)'

10.10 'Cybersecurity in aviation maintenance' is added to keep up to date with new methods of recording aircraft documentation and requires an understanding of the security required.

MODULE 11~~A~~. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

MODULE 11~~A~~. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL				
	A1	A2	B1.1	B1.2 / B.1.E	B3
11.1 Theory of Flight ~~11.1.1~~ (a) Aeroplane Aerodynamics and Flight Controls ~~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 balance, control surface bias, aerodynamic balance panels.~~ ~~Propeller~~	1	1	2	2	1
11.1.~~2~~ (b) ~~High Speed Flight~~ Aeroplane, other aerodynamic devices. ~~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.~~	1	1	2		1

11.2 Airframe Structures (ATA 51) — ~~General Concepts~~ (a) General Concepts ~~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	2	2	2
(b) Airworthiness requirements for structural strength;~~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.~~	~~1~~2	2	2	2	2
(c) Construction methods.	1	1	2	2	2
11.3 Airframe Structures — Aeroplanes	Ignore this box, formatting error.				

11.3.1 Fuselage (ATA 52/53/56) (a) Construction principles; ~~Construction and pressurisation sealing;~~ ~~Wing, stabiliser, pylon and undercarriage attachments;~~	1	~~2~~1	2	2	1
~~Seat installation and cargo loading system;~~ (b) Airborne towing devices;	1	1	1	1	1
(c) Doors. ~~Doors and emergency exits: construction, mechanisms, operation and safety devices;~~ ~~Windows and windscreen construction and mechanisms.~~	1	1	2	1	-
11.3.2 Wings (ATA 57) ~~Construction;~~ ~~Fuel storage;~~ ~~Landing gear, pylon, control surface and high lift/drag attachments.~~	1	1	2	2	1
11.3.3 Stabilisers (ATA 55) ~~Construction;~~ ~~Control surface attachment.~~	1	1	2	2	1
11.3.4 Flight Control Surfaces (ATA 55/57) ~~Construction and attachment;~~ ~~Balancing — mass and aerodynamic.~~	1	1	2	2	1
11.3.5 Nacelles/Pylons (ATA 54) ~~Nacelles/Pylons:~~ ~~— Construction,~~ ~~— Firewalls,~~ ~~— Engine mounts.~~	1	1	2	2	1
11.4 Air Conditioning and Cabin Pressurisation (ATA 21) ~~Air supply Sources of air supply including engine bleed, APU and ground cart.~~					
11.4.~~3~~ (a) Pressurisation ~~Pressurisation systems;~~ ~~Control and indication including control and safety valves;~~ ~~Cabin pressure controllers.~~	1	1	3	3	-

(b) Air supply ~~Sources of air supply including engine bleed, APU and ground cart.~~	1	-	~~2~~3	-	-
11.4.~~2~~ (c) Air Conditioning ~~Air conditioning systems;~~ ~~Air cycle and vapour cycle machines;~~ ~~Distribution systems;~~ ~~Flow, temperature and humidity control system.~~	1	-	3	-	-
~~11.4.3 Pressurisation~~ ~~Pressurisation systems;~~ ~~Control and indication including control and safety valves;~~ ~~Cabin pressure controllers.~~	~~1~~		~~3~~		
11.4.~~4~~ (d) Safety and warning devices Protection and warning devices.	1	1	3	3	-
(c) Heating and ventilation system	-	1	-	3	1
11.5 Instruments/Avionic Systems 11.5.1 Instrument Systems (ATA 31) ~~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.~~	1	1	2	2	2
11.5.2 Avionic Systems ~~Fundamentals of system lay outs and operation of:~~ ~~— Auto Flight (ATA 22),~~ ~~— Communications (ATA 23),~~ ~~— Navigation Systems (ATA 34).~~	1	1	1	1	1

11.6 Electrical Power (ATA 24) ~~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.~~	1	1	3	3	3
11.7 Equipment and Furnishings (ATA 25) (a) Emergency equipment requirements; ~~Seats, harnesses and belts.~~	2	2	2	2	2
(b) Cabin and cargo lay-out; ~~Equipment lay-out;~~ ~~Cabin Furnishing installation;~~ ~~Cabin entertainment equipment;~~ ~~Galley installation;~~ ~~Cargo handling and retention equipment;~~ ~~Airstairs.~~	1	1	1	1	-
11.8 Fire Protection (ATA 26) (a) Fire and smoke detection ~~and warning~~ systems and fire extinguishing systems; ~~Fire extinguishing systems;~~ ~~System tests;~~	1	1	3	3	-
(b) Portable fire extinguisher.	1	1	~~2~~1	1	1
11.9 Flight Controls (ATA 27) (a) Primary and secondary flight controls; (b) Actuation and protection;	1	1	3	2	2
(c) System operation; (d) Balancing and rigging ~~Primary controls: aileron, elevator, rudder, spoiler;~~	1	-	3	-	-
~~Trim control;~~ ~~Active load control;~~	1	-	3	-	-

~~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.~~	1	1	3	3	2
11.10 Fuel Systems (ATA 28, ATA 47) (a) System lay-out;	1	~~3~~1	3	3/ -	1
(b) Fuel handling ~~tanks~~;	1	1	3	3/-	1
(c) Indication and warnings; (d) Special Systems;	1	1	3	3/-	1
(e) Balancing. ~~Supply systems;~~	1	-	3	-	-
~~Dumping, venting and draining;~~ ~~Cross-feed and transfer;~~ ~~Indications and warnings;~~ ~~Refuelling and defuelling;~~ ~~Longitudinal balance fuel systems.~~	1	-	3	-	-
11.11 Hydraulic Power (ATA 29) (a) System description; (b) System operation (1); (c) System Operation (2).	1	1	3	3	2
~~System lay-out;~~ ~~Hydraulic fluids;~~ ~~Hydraulic reservoirs and accumulators;~~ ~~Pressure generation: electric, mechanical, pneumatic;~~	1	1	3	3	2
~~Emergency pressure generation;~~ ~~Filters;~~ ~~Pressure Control;~~ ~~Power distribution;~~ ~~Indication and warning systems;~~ ~~Interface with other systems.~~	1	-	3	-	-

11.12 Ice and Rain Protection (ATA 30) (a) Principles;	1	1	3	3	1
(b) De-icing; (c) Anti-icing	1	1	3	3	1
(d) Wipers (e) Tail protection	1	-	3	-	-
~~Rain repellent systems~~ ~~Ice formation, classification and detection;~~	1	1	3	3	1
~~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.~~	1	-	3	-	-
11.13 Landing Gear (ATA 32) (a) Description; (b) System operation;	2	2	3	3	2
(c) Air-ground sensing; (d) Tail protection.	2	2	3	3	2
~~Construction, shock absorbing;~~ ~~Extension and retraction systems: normal and emergency;~~	2	-	3	-	-
~~Indications and warning;~~ ~~Wheels, brakes, antiskid and autobraking;~~ ~~Tyres;~~ ~~Steering;~~ ~~Air-ground sensing.~~	2	2	3	3	2
11.14 Lights (ATA 33) ~~External: navigation, anti-collision, landing, taxiing, ice;~~ ~~Internal: cabin, cockpit, cargo;~~ ~~Emergency.~~	2	2	3	3	2

11.15 Oxygen (ATA 35) ~~System lay-out: cockpit, cabin;~~ ~~Sources, storage, charging and distribution;~~ ~~Supply regulation;~~ ~~Indications and warnings.~~	1	1	3	3	2
11.16 Pneumatic/Vacuum (ATA 36) (a) Systems; (b) Pumps. ~~System lay-out;~~	1	1	3	3	2
~~Sources: engine/APU (Auxiliary Power Unit), compressors, reservoirs, ground supply;~~ ~~Pressure and vacuum pumps;~~ ~~Pressure control; Distribution;~~ ~~Indications and warnings;~~ ~~Interfaces with other systems.~~	1	1	3	3	2
11.17 Water/Waste (ATA 38) (a) Systems; (b) Corrosion.	2	2	3	3	2
~~Water system lay-out, supply, distribution, servicing and draining;~~ ~~Toilet system lay-out, flushing and servicing;~~ ~~Corrosion aspects.~~	2	2	3	3	2
11.18 On Board Maintenance Systems (ATA 45) ~~Central maintenance computers;~~ ~~Data loading system;~~ ~~Electronic library system;~~ ~~Printing;~~ ~~Structure monitoring (damage tolerance monitoring).~~	1	-	2	-	-
11.19 Integrated Modular Avionics (ATA42) (a) Overall system description and theory; (b) Typical systems layouts.	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.~~	1	-	2	-	-
11.20 Cabin Systems (ATA44) ~~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. 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). CNS typically consists of a server, interfacing with, among others, the following systems:~~ ~~— 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).~~ ~~CNS may host functions such as:— access to pre-departure/departure reports;~~ ~~— e-mail/intranet/internet access; passenger database.~~ ~~Cabin Core System;~~ ~~In-flight Entertainment System;~~ ~~External Communication System;~~ ~~Cabin Mass Memory System;~~	1	-	2	-	-

~~Cabin Monitoring System;~~ ~~Miscellaneous Cabin System.~~					
11.21 Information Systems (ATA46) ~~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;~~ ~~Miscellaneous Information System.~~	1	-	2	-	-

Editorial note: deleting 11B as now combined with Table 11 above.

~~MODULE 11B. PISTON 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.

MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A2	B1.2
11.1 Theory of Flight 11.1.1 Aeroplane Aerodynamics and Flight Controls 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 balance, control surface bias, aerodynamic balance panels.	1	2
11.1.2 High Speed Flight — N/A	—	—
11.2 Airframe Structures — General Concepts (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 chromating, anodising, painting; Surface cleaning;	1	2

Airframe symmetry: methods of alignment and symmetry checks.		
11.3 Airframe Structures — Aeroplanes 11.3.1 Fuselage (ATA 52/53/56) Construction and pressurisation sealing; Wing, tail plane, pylon and undercarriage attachments; Seat installation; Doors and emergency exits: construction and operation; Windows and windscreen attachment.	1	2
11.3.2 Wings (ATA 57) Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments.	1	2
11.3.3 Stabilisers (ATA 55) Construction; Control surface attachment.	1	2
11.3.4 Flight Control Surfaces (ATA 55/57) Construction and attachment; Balancing — mass and aerodynamic.	1	2
11.3.5 Nacelles/Pylons (ATA 54) Nacelles/Pylons: — Construction, — Firewalls, — Engine mounts.	1	2
11.4 Air Conditioning and Cabin Pressurisation (ATA 21) Pressurisation and air conditioning systems; Cabin pressure controllers, protection and warning devices; Heating systems.	1	3
11.5 Instruments/Avionic Systems 11.5.1 Instrument Systems (ATA 31) 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.	1	2

11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (ATA 22), — Communications (ATA 23), — Navigation Systems (ATA 34).	1	1
11.6 Electrical Power (ATA 24) Batteries Installation and Operation; DC power generation; Voltage regulation; Power distribution; Circuit protection; Inverters, transformers.	1	3
11.7 Equipment and Furnishings (ATA 25) (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 Fire Protection (ATA 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests;	1	3
(b) Portable fire extinguisher.	1	2
11.9 Flight Controls (ATA 27) Primary controls: aileron, elevator, rudder; Trim tabs; High lift devices; System operation: manual; Gust locks; Balancing and rigging; Stall warning system.	1	3

~~11.10 Fuel Systems (ATA 28)~~ ~~System lay-out;~~ ~~Fuel tanks;~~ ~~Supply systems;~~ ~~Cross-feed and transfer;~~ ~~Indications and warnings;~~ ~~Refuelling and defuelling.~~	~~1~~	~~3~~
~~11.11 Hydraulic Power (ATA 29)~~ ~~System lay-out;~~ ~~Hydraulic fluids;~~ ~~Hydraulic reservoirs and accumulators;~~ ~~Pressure generation: electric, mechanical;~~ ~~Filters; Pressure Control;~~ ~~Power distribution;~~ ~~Indication and warning systems.~~	~~1~~	~~3~~
~~11.12 Ice and Rain Protection (ATA 30)~~ ~~Ice formation, classification and detection;~~ ~~De-icing systems: electrical, hot air, pneumatic and chemical;~~ ~~Probe and drain heating;~~ ~~Wiper systems.~~	~~1~~	~~3~~
~~11.13 Landing Gear (ATA 32)~~ ~~Construction, shock absorbing;~~ ~~Extension and retraction systems: normal and emergency;~~ ~~Indications and warning;~~ ~~Wheels, brakes, antiskid and autobraking;~~ ~~Tyres;~~ ~~Steering;~~ ~~Air-ground sensing.~~	~~2~~	~~3~~
~~11.14 Lights (ATA 33)~~ ~~External: navigation, anti-collision, landing, taxiing, ice;~~ ~~Internal: cabin, cockpit, cargo;~~ ~~Emergency.~~	~~2~~	~~3~~

11.15 Oxygen (ATA 35) - System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; - Indications and warnings.	1	3
11.16 Pneumatic/Vacuum (ATA 36) - System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure and vacuum pumps; - Pressure control; Distribution; - Indications and warnings; Interfaces with other systems.	1	3
11.17 Water/Waste (ATA 38) Water system lay-out, supply, distribution, servicing and draining; - Toilet system lay-out, flushing and servicing; Corrosion aspects.	2	3

Editorial note: deleting module 11C as now combined in module 11.

MODULE 11C. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

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

MODULE 11C. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL B3
11.1 Theory of Flight Aeroplane Aerodynamics and Flight Controls Operation and effect of: — 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;	1

Operation and effect of trim tabs, balance and anti-balance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels.	
11.2 Airframe Structures — General Concepts (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 Airframe Structures — Aeroplanes 11.3.2 Fuselage (ATA 52/53/56) Construction; Wing, tail-plane, pylon and undercarriage attachments; Seat installation; Doors and emergency exits: construction and operation; Window and windscreen attachment. Wings (ATA 57) Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments.	1
11.3.3 Stabilisers (ATA 55) Construction; Control surface attachment.	1
11.3.4 Flight Control Surfaces (ATA 55/57) Construction and attachment; Balancing — mass and aerodynamic.	1
11.3.5 Nacelles/Pylons (ATA 54) Nacelles/Pylons: — Construction, — Firewalls, — Engine mounts.	1
11.4 Air Conditioning (ATA 21) Heating and ventilation systems.	1
11.5 Instruments/Avionic Systems 11.5.1 Instrument Systems (ATA 31) 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.	1

11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (ATA 22), — Communications (ATA 23), — Navigation Systems (ATA 34).	1
11.6 Electrical Power (ATA 24) Batteries Installation and Operation; DC power generation; Voltage regulation; Power distribution; Circuit protection; Inverters, transformers.	2
11.7 Equipment and Furnishings (ATA 25) Emergency equipment requirements; Seats, harnesses and belts.	2
11.8 Fire Protection (ATA 26) Portable fire extinguisher.	2
11.9 Flight Controls (ATA 27) Primary controls: aileron, elevator, rudder; Trim tabs; High lift devices; System operation: manual; Gust locks; Balancing and rigging; Stall warning system.	3
11.10 Fuel Systems (ATA 28) System lay-out; Fuel tanks; Supply systems; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling.	2

~~11.11 Hydraulic Power (ATA 29)~~ ~~System lay-out; Hydraulic fluids;~~ ~~Hydraulic reservoirs and accumulators;~~ ~~Pressure generation: electric, mechanical;~~ ~~Filters;~~ ~~Pressure Control;~~ ~~Power distribution;~~ ~~Indication and warning systems.~~	2
~~11.12 Ice and Rain Protection (ATA 30)~~ ~~Ice formation, classification and detection;~~ ~~De-icing systems: electrical, hot air, pneumatic and chemical;~~ ~~Probe and drain heating;~~ ~~Wiper systems.~~	1
~~11.13 Landing Gear (ATA 32)~~ ~~Construction, shock absorbing;~~ ~~Extension and retraction systems: normal and emergency;~~ ~~Indications and warning;~~ ~~Wheels, brakes, antiskid and autobraking;~~ ~~Tyres;~~ ~~Steering.~~	2
~~11.14 Lights (ATA 33)~~ ~~External: navigation, anti collision, landing, taxiing, ice;~~ ~~Internal: cabin, cockpit, cargo;~~ ~~Emergency.~~	2
~~11.15 Oxygen (ATA 35)~~ ~~System lay-out: cockpit, cabin;~~ ~~Sources, storage, charging and distribution;~~ ~~Supply regulation;~~ ~~Indications and warnings.~~	2

~~11.16 Pneumatic/Vacuum (ATA 36)~~ ~~System lay-out;~~ ~~Sources: engine/APU, compressors, reservoirs, ground supply;~~ ~~Pressure and vacuum pumps Pressure control;~~ ~~Distribution;~~ ~~Indications and warnings;~~ ~~Interfaces with other systems.~~	2

0201.21.12 – Intent of proposed changes - Appendix I to Part 66

The module syllabus' have been changed to account for the following:

The module syllabus description has been moved to AMC.

Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 11. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEM

Modules 11A/B/C have been merged.

Improved subdivision of the subjects.

Added ATA chapters.

MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS

MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A3 A4	B1.3 B1.4
12.1 Theory of Flight — Rotary Wing Aerodynamics ~~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.~~	1	2
12.2 Flight Control Systems (ATA 67) ~~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;~~ ~~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.~~	2	3
12.3 Blade Tracking and Vibration Analysis (ATA 18) ~~Rotor alignment;~~ ~~Main and tail rotor tracking;~~ ~~Static and dynamic balancing; Vibration types, vibration reduction methods;~~ ~~Ground resonance.~~	1	3
12.4 Transmission ~~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.~~	1	3

12.5 Airframe Structures (ATA 51) (a) General concept ~~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;~~	2	2
(b) Construction methods of the principal elements. ~~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.~~	1	2
12.6 Air Conditioning (ATA 21) 12.6.1 Air supply ~~Sources of air supply including engine bleed and ground cart.~~	1	2

12.6.2 Air conditioning ~~Air conditioning systems;~~ ~~Distribution systems;~~ ~~Flow and temperature control systems;~~ ~~Protection and warning devices.~~	1	3
12.7 Instruments/Avionic Systems 12.7.1 Instrument Systems (ATA 31) ~~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.~~	1	2
12.7.2 Avionic Systems ~~Fundamentals of system layouts and operation of:~~ ~~Auto Flight (ATA 22);~~ ~~Communications (ATA 23);~~ ~~Navigation Systems (ATA 34).~~	1	1
12.8 Electrical Power (ATA 24) ~~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.~~	1	3
12.9 Equipment and Furnishings (ATA 25) (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 Fire Protection (ATA 26) (a) Fire and smoke detection systems and ~~warning~~ fire-extinguishing systems; ~~Fire extinguishing systems;~~ ~~System tests.~~ (b) Portable fire extinguishers.	1 1	3 1
12.11 Fuel Systems (ATA 28) ~~System lay-out;~~ ~~Fuel tanks;~~ ~~Supply systems;~~ ~~Dumping, venting and draining;~~ ~~Cross-feed and transfer;~~ ~~Indications and warnings;~~ ~~Refuelling and defuelling.~~	1	3
12.12 Hydraulic Power (ATA 29) ~~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.~~	1	3
12.13 Ice and Rain Protection (ATA 30) ~~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.~~	1	3

12.14 Landing Gear (ATA 32) (a) Systems description and operation; (b) Sensors. ~~Construction, shock absorbing;~~	2	3
~~Extension and retraction systems: normal and emergency;~~ ~~Indications and warning;~~ ~~Wheels, Tyres, brakes;~~ ~~Steering;~~ ~~Air-ground sensing;~~ ~~Skids, floats.~~	2	3
12.15 Lights (ATA 33) ~~External: navigation, landing, taxiing, ice;~~ ~~Internal: cabin, cockpit, cargo;~~ ~~Emergency.~~	2	3
12.16 (Reserved) ~~Pneumatic/Vacuum (ATA 36)~~ ~~System lay-out;~~ ~~Sources: engine/APU, compressors, reservoirs, ground supply; Pressure and vacuum pumps;~~ ~~Pressure control;~~ ~~Distribution; Indications and warnings;~~ ~~Interfaces with other systems.~~	2~~1~~	3
12.17 Integrated Modular Avionics (ATA42) (a) Overall system description and theory (b) Typical system layouts ~~Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others:~~	1	2
~~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.~~	1	2

12.18 On Board Maintenance Systems (ATA45) ~~Central maintenance computers;~~ ~~Data loading system;~~ ~~Electronic library system;~~ ~~Printing;~~ ~~Structure monitoring (damage tolerance monitoring).~~	1	2
12.19 Information Systems (ATA46) ~~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;~~ ~~Miscellaneous Information System.~~	1	2

0201.21.13 – Intent of proposed changes - Appendix I to Part 66

The module syllabus' have been changed to account for the following:

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Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence

(sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS ATA chapters added.

MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS	**LEVEL**						
	B2 **~~B2L~~**	**B2L** **Basic**	**B2L** **C/N**	**B2L** **Ins.**	**B2L** **A/F**	**B2L** **Sur.**	**B2L** **A/S**
13.1 Theory of Flight (a) Aeroplane Aerodynamics and Flight Controls ~~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.~~	1	1	-	-	-	-	-
~~(b) High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight;Mach number, critical Mach number.~~	~~1~~						
~~(c)~~ (b) Rotary Wing Aerodynamics ~~Terminology;~~ ~~Operation and effect of cyclic, collective and anti-torque controls.~~	1	1	-	-	-	-	-
13.2 Structures — (a) General Concept;~~s~~ (b) Fundamentals of Structural Systems							
	~~1~~2	2					
	~~2~~1	1					
	~~2~~						
	~~2~~						

~~Zonal and Station Identification Systems~~ ~~Electrical bonding Lightning strike protection provision.~~							
13.3 Autoflight (ATA 22) (a) Fundamentals of automatic flight control; ~~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;~~	3	-	-	-	3	-	-
(b) Autothrottle systems and automatic landing systems; ~~Automatic landing systems: principles and categories, modes of operation, approach, glideslope, land, go-around, system monitors and failure conditions.~~	3	-	-	-	3	-	-

13.4 Communication/Navigation (ATA 23/34) (a) Fundamentals of communication and navigation systems; ~~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);~~ ~~— 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.~~	3	-	3	-	-	-	-
(b) Fundamentals of aircraft surveillance systems. ~~— 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).~~	3	-	-	-	-	3	-
~~(c)~~ ~~— 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.~~	~~3~~ - - - - -						

13.5 Electrical Power (ATA 24) ~~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.~~	3	3	-	-	-	-	-
13.6 Equipment and Furnishings (ATA 25) ~~Electronic emergency equipment requirements;~~ ~~Cabin entertainment equipment.~~	3	-	-	-	-	-	-
13.7 Flight Controls (ATA 27) (a) Primary controls~~:~~ and secondary flight 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.~~	2	-	-	-	2	-	-
(b) Actuation and protection	2	-	-	-	2	-	-
~~(b)~~ (c) System operation~~: electrical, fly by wire.~~	3				3		
(d) Rotorcraft flight controls (ATA 67)	2				2		

13.8 Instruments (ATA 31) ~~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;~~ ~~Glass cockpit.~~	3	-	-	3	-	-	-
13.9 Lights (ATA 33) ~~External: navigation, landing, taxiing, ice;~~ ~~Internal: cabin, cockpit, cargo;~~ ~~Emergency.~~	3	3	-	-	-	-	-

13.10 On-Board Maintenance Systems (ATA 45) ~~Central maintenance computers;~~ ~~Data-loading system;~~ ~~Electronic library system;~~ ~~Printing system;~~ ~~Structure monitoring system (damage tolerance monitoring).~~	3	-	-	-	-	-	-
13.11 Air Conditioning and Cabin Pressurisation (ATA 21) 13.11.~~3~~ (a) Pressurisation ~~Pressurisation systems;~~ ~~Control and indication including control and safety valves;~~ ~~Cabin pressure controllers.~~	3	-	-	-	-	-	3
13.11.~~1~~ (b) Air Supply; ~~Sources of air supply including engine bleed, APU and ground cart;~~	~~2~~1	-	-	-	-	-	1
13.11.~~2~~ (c) Air Conditioning; ~~Air-conditioning systems;~~ ~~Air cycle and vapour cycle machines;~~ ~~Distribution systems;~~ ~~Flow, temperature and humidity control system.~~	3 ~~2~~ ~~3~~ ~~1~~ ~~3~~	-	-	-	-	-	3
13.11.~~4~~ (d) Safety and Warning Devices Protection and warning devices.	3	-	-	-	-	-	3
13.12 Fire Protection (ATA 26) (a) Fire and smoke detection system and fire-extinguishing ~~warning~~ systems; ~~Fire extinguishing systems;~~ ~~System tests.~~	3	-	-	-	-	-	3
(b) Portable fire extinguisher.	1	-	-	-	-	-	1
13.13 Fuel Systems (ATA 28) (a) System layout; (b) Fuel handling ~~tanks~~; ~~Supply systems;~~ ~~Dumping, venting and draining;~~ ~~Cross feed and transfer;~~ (c) Indications and warnings; ~~Refuelling and defuelling;~~	1 ~~12~~ ~~13~~ ~~11~~ ~~23~~ ~~3~~ ~~2~~ ~~3~~	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	1 2 3 1 3

~~Longitudinal balance fuel systems.~~ (d) Special systems; (e) Balancing							
13.14 Hydraulic Power (ATA 29)							
(a) System layout;	1						
(b) System operation (1);	3						
(c) System operation (2);	3						
~~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 Ice and Rain Protection (ATA 30)							
~~Ice formation, classification and detection~~; (a) Principles	2	-	-	-	-	-	2
(b) De-icing systems~~: electrical, hot air, pneumatic, chemical;~~	3	-	-	-	-	-	3
(c)Anti-icing systems: ~~electrical, hot air and chemical;~~	2	-	-	-	-	-	2
(d)Wiper systems.	1	-	-	-	-	-	1
(e) Rain-repellent;	1	-	-	-	-	-	1
~~Probe and drain heating;~~	~~3~~	-	-	-	-	-	
13.16 Landing Gear (ATA 32)							
~~Construction, shock absorbing;~~ (a) Description;	1	-	-	-	-	-	1
~~Extension and retraction systems: normal and emergency;~~ (b) System;	3	-	-	-	-	-	
~~Indications and warnings;~~	~~3~~						
~~Wheels, brakes, antiskid and automatic braking systems;~~	~~3~~						
~~Tyres;~~	~~1~~						
~~Steering;~~	~~3~~						
(c)Air-ground sensing.	3	-	-	-	-	-	3
13.17 Oxygen (ATA 35)	3	-	-	-	-	-	3
~~System layout: cockpit, cabin;~~	~~3~~						
~~Sources, storage, charging and distribution;~~	~~3~~						
~~Supply regulation;~~	~~3~~						
~~Indications and warnings.~~	~~3~~						
13.18 Pneumatic/Vacuum (ATA 36)	2	-	-	-	-	-	2
~~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 Water/Waste (ATA 38)	2	-	-	-	-	-	2
~~Water system layout, supply, distribution, servicing and draining;Toilet system layout, flushing and servicing.~~							

13.20 Integrated Modular Avionics (IMA) (ATA 42) (a) Overall system description and theory; ~~Core system;~~ ~~Network components.~~ ~~**Note:** Functions that may be typically integrated into the 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 Built In Test Equipment (BITE);~~ ~~– fuel management;~~ ~~– braking control;~~ ~~– steering control;~~ ~~– landing gear extension and retraction;~~ ~~– tyre pressure indication;~~ ~~– oleo pressure indication;~~ ~~– brake temperature monitoring.~~ (b) Typical systems layouts.	3 3	-	-	-	-	-	-
13.21 Cabin Systems (ATA 44) ~~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.~~ ~~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).~~	3	-	-	-	-	-	-

~~CNS typically consists of a server, interfacing with, among others, the following systems:~~ ~~— 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).~~ ~~CNS may host functions such as:~~ ~~— access to pre-departure/departure reports;~~ ~~— e-mail/intranet/internet access;~~ ~~— passenger database.~~							
13.22 Information Systems (ATA 46) ~~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.~~ ~~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;~~ ~~— Miscellaneous information systems.~~	3	-	-	-	-	-	-

0201.21.14 – Intent of proposed changes - Appendix I to Part 66
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MODULE 14. PROPULSION Engines propulsion subjects added.

14.3 ‘Propeller systems’ has been added.

MODULE 14. PROPULSION

MODULE 14. PROPULSION	**LEVEL**
	B2 **B2L Instruments** **B2L Airframe & Systems**
14.1 ~~Turbine~~ Engines	1
(a) ~~Constructional arrangement and operation of turbojet, turbofan, turboshaft and turbopropeller engines;~~ Turbine engines;	1
(b) Auxiliary power units (APU’s);	1
(c) Piston engines;	2
(d) Electric and hybrid power plant and auxiliary systems;	2
(e) Engine control.	
~~(b) Electronic Engine control and fuel metering systems (FADEC).~~	~~2~~

14.2 ~~Engine~~ Electric / electronic engine Indicati~~n~~o~~g~~ Systems ~~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;~~ ~~Fuel pressure, temperature and flow;~~ ~~Manifold pressure;~~ ~~Engine torque;~~ ~~Propeller speed.~~	2
14.3 Propeller systems	2
14.3~~4~~ ~~Starting and Ignition Systems~~ ~~Operation of engine start systems and components;~~ ~~Ignition systems and components;~~ ~~Maintenance safety requirements.~~	2

0201.21.15 – Intent of proposed changes - Appendix I to Part 66

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MODULE 14. PROPULSION Engines propulsion subjects added.

14.3 ‘Propeller systems’ has been added.

MODULE 15. GAS TURBINE ENGINE

MODULE 15. GAS TURBINE ENGINE	LEVEL	
	A1 A3	B1.1 B1.3
15.1 Fundamentals ~~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.~~	1	2
15.2 Engine Performance ~~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;~~ ~~Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating, limitations.~~	—	2
15.3 Inlet ~~Compressor inlet ducts~~ ~~Effects of various inlet configurations;~~ ~~Ice protection.~~	2	2
15.4 Compressors ~~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.~~	1	2
15.5 Combustion Section ~~Constructional features and principles of operation.~~	1	2
15.6 Turbine Section ~~Operation and characteristics of different turbine blade types;~~	2	2

Blade to disk attachment; Nozzle guide vanes; Causes and effects of turbine blade stress and creep.		
15.7 Exhaust Constructional features and principles of operation; Convergent, divergent and variable area nozzles; Engine noise reduction; Thrust reversers.	1	2
15.8 Bearings and Seals Constructional features and principles of operation.	—	2
15.9 Lubricants and Fuels Properties and specifications; Fuel additives; Safety precautions.	1	2
15.10 Lubrication Systems System operation/lay-out and components.	1	2
15.11 Fuel Systems Operation of engine control and fuel metering systems including electronic engine control (FADEC); Systems lay-out and components.	1	2
15.12 Air Systems Operation of engine air distribution and anti-ice control systems, including internal cooling, sealing and external air services.	1	2
15.13 Starting and Ignition Systems Operation of engine start systems and components; Ignition systems and components; Maintenance safety requirements.	1	2
15.14 Engine Indication Systems 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.	1	2

15.15 ~~Power Augmentation Systems~~ Alternate turbine constructions ~~Operation and applications;~~ ~~Water injection, water methanol;~~ ~~Afterburner systems.~~	—	1
15.16 Turbo-prop Engines ~~Gas coupled/free turbine and gear coupled turbines;~~ ~~Reduction gears;~~ ~~Integrated engine and propeller controls;~~ ~~Overspeed safety devices.~~	1	2
15.17 Turbo-shaft Engines ~~Arrangements, drive systems, reduction gearing, couplings, control systems.~~	1	2
15.18 Auxiliary Power Units (APUs) ~~Purpose, operation, protective systems.~~	1	2
15.19 Powerplant Installation ~~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.~~	1	2
15.20 Fire Protection Systems ~~Operation of detection and extinguishing systems.~~	1	2
15.21 Engine Monitoring and Ground Operation ~~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.~~	1	3
15.22 Engine Storage and Preservation ~~Preservation and depreservation for the engine and accessories/systems.~~	—	2

0201.21.16 – Intent of proposed changes - Appendix I to Part 66

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MODULE 15. GAS TURBINE ENGINE 15.15 ‘Alternate turbine constructions’ replaces ‘Power Augmentation Systems’.

MODULE 16. PISTON ENGINE

MODULE 16. PISTON ENGINE	**LEVEL**		
	A2 A4	**B1.2 B1.4 B3**	~~**B3**~~
16.1 Fundamentals ~~Mechanical, thermal and volumetric efficiencies;~~ ~~Operating principles — 2 stroke, 4 stroke, Otto and Diesel;~~ ~~Piston displacement and compression ratio;~~ ~~Engine configuration and firing order.~~	1	2	~~2~~
16.2 Engine Performance Power ~~calculation and measurement;~~ ~~Factors affecting engine power;~~ ~~Mixtures/leaning, pre-ignition.~~	1	2	~~2~~
16.3 Engine Construction ~~Crank case, crank shaft, cam shafts, sumps;~~ ~~Accessory gearbox;~~ ~~Cylinder and piston assemblies;~~ ~~Connecting rods, inlet and exhaust manifolds;~~ ~~Valve mechanisms;~~ ~~Propeller reduction gearboxes.~~	1	2	~~2~~

16.4 Engine Fuel Systems 16.4.1 Carburettors ~~Types, construction and principles of operation;~~ ~~Icing and heating.~~	1	2	~~2~~
16.4.2 Fuel injection systems ~~Types, construction and principles of operation.~~	1	2	~~2~~
16.4.3 Electronic engine control ~~Operation of engine control and fuel metering systems including electronic engine control (FADEC);~~ ~~Systems lay-out and components.~~	1	2	~~2~~
16.5 Starting and Ignition Systems ~~Starting systems, pre-heat systems;~~ ~~Magneto types, construction and principles of operation;~~ ~~Ignition harnesses, spark plugs;~~ ~~Low and high tension systems.~~	1	2	~~2~~
16.6 Induction, Exhaust and Cooling Systems ~~Construction and operation of: induction systems including alternate air systems;~~ ~~Exhaust systems, engine cooling systems — air and liquid.~~	1	2	~~2~~
16.7 Supercharging/Turbocharging ~~Principles and purpose of supercharging and its effects on engine parameters;~~ ~~Construction and operation of supercharging/turbocharging systems; System terminology;~~ ~~Control systems;~~ ~~System protection.~~	1	2	~~2~~
16.8 Lubricants and Fuels ~~Properties and specifications;~~ ~~Fuel additives;~~ ~~Safety precautions.~~	1	2	~~2~~
16.9 Lubrication Systems ~~System operation/lay-out and components.~~	1	2	~~2~~

16.10 Engine Indication Systems ~~Engine speed;~~ ~~Cylinder head temperature;~~ ~~Coolant temperature;~~ ~~Oil pressure and temperature;~~ ~~Exhaust Gas Temperature;~~ ~~Fuel pressure and flow;~~ ~~Manifold pressure.~~	1	2	~~2~~
16.11 Powerplant Installation ~~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.~~	1	2	~~2~~
16.12 Engine Monitoring and Ground Operation ~~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.~~	1	3	~~2~~
16.13 Engine Storage and Preservation ~~Preservation and depreservation for the engine and accessories/systems.~~	—	2	~~1~~
16.14 Alternative piston engine constructions	1	1	

0201.21.17 – Intent of proposed changes - Appendix I to Part 66

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(sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 16. PISTON ENGINE

B3 knowledge levels have been amended to match B1 knowledge levels.

16.14 ‘Alternative piston engine constructions’ has been added.

MODULE 17~~A~~. PROPELLER

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

Editorial note: A from 17A to be deleted, the strikethrough is hard to see.

MODULE 17~~A~~. PROPELLER	**LEVEL**	
	A	**B1.1 B1.2 B1.E B3**
17.1 Fundamentals ~~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.~~	1	2
17.2 Propeller Construction ~~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.~~	1	2
17.3 Propeller Pitch Control ~~Speed control and pitch change methods, mechanical and electrical/electronic; Feathering and reverse pitch;~~	1	2

~~Overspeed protection.~~		
17.4 Propeller Synchronising ~~Synchronising and synchrophasing equipment.~~	—	2
17.5 Propeller Ice Protection ~~Fluid and electrical de-icing equipment.~~	1	2
17.6 Propeller Maintenance ~~Static and dynamic balancing; Blade tracking;~~ ~~Assessment of blade damage, erosion, corrosion, impact damage, delamination; Propeller treatment/repair schemes;~~ ~~Propeller engine running.~~	1	3
17.7 Propeller Storage and Preservation ~~Propeller preservation and depreservation.~~	1	2

Editorial note: Module 17B is deleted as now incorporated with the table for module 17 above.

~~MODULE 17B. PROPELLER~~

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

~~MODULE 17B. PROPELLER~~	**LEVEL**
	B3
~~17.1 Fundamentals~~ ~~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.~~	~~2~~
~~17.2 Propeller Construction~~ ~~Construction methods and material 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.~~	~~2~~

~~17.3 Propeller Pitch Control~~ ~~Speed control and pitch change methods, mechanical and electrical/electronic; Feathering and reverse pitch;~~ ~~Overspeed protection.~~	~~2~~
~~17.4 Propeller Synchronising~~ ~~Synchronising and synchrophasing equipment.~~	~~2~~
~~17.5 Propeller Ice Protection~~ ~~Fluid and electrical de-icing equipment.~~	~~2~~
~~17.6 Propeller Maintenance~~ ~~Static and dynamic balancing;~~ ~~Blade tracking;~~ ~~Assessment of blade damage, erosion, corrosion, impact damage, delamination;~~ ~~Propeller treatment/repair schemes;~~ ~~Propeller engine running.~~	~~2~~
~~17.7 Propeller Storage and Preservation~~ ~~Propeller preservation and depreservation.~~	~~2~~

0201.21.18 – Intent of proposed changes - Appendix I to Part 66

The module syllabus' have been changed to account for the following:

The module syllabus description has been moved to AMC.

Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 17. PROPELLER

M17A and 17B have been merged.

B3 knowledge levels have been amended to match B1 knowledge levels.

MODULE 18. ELECTRIC POWER PLANT

MODULE 18. ELECTRIC POWER PLANT	LEVEL
	B1.E
18.1 Fundamentals	3
18.2 Engine performance	3
18.3 Engine construction	3
18.4 Electric energy system	3
18.4.1 Batteries and accessories	3
18.4.2 Fuel cells and accessories	3
18.4.3 Power distribution systems	3
18.4.4 Electronic engine control	3
18.5 Engine indication systems	3
18.6 Powerplant installation	3
18.7 Engine monitoring and ground operation	3
18.8 Engine storage and preservation	3

0201.21.19 – Intent of proposed changes - Appendix I to Part 66

The module syllabus' have been changed to account for the following:

The module syllabus description has been moved to AMC.

Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 18. ELECTRIC POWERPLANT is added.

3. Basic training methods

An appropriate training method, or combination of methods, must be determined for the entire course or for each of its modules or submodules, with regard to the scope and objectives of each training phase and taking into consideration the benefits and limitations of the available training methods.

Multimedia-based training (MBT) methods may be used in order to achieve the training objectives either in a physically or in a virtually controlled environment.

0201.21 – Intent of proposed changes - Appendix I to Part 66

Point 2

- Wording is amended to reflect the new table layout.
- The two tables are combined as well as the amendment to incorporate the B1.E

The module syllabus' have been changed to account for the following:

The module syllabus descriptions have been moved to AMC.

Some of the levels required for a category have been adjusted. This has been done for one of two reasons. Firstly, to account for a change to the module, for example a change in the technology and materials maintained by that licence subcategory. The most significant

change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)category(ies). This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

MODULE 1. MATHEMATICS

B1, B2 and B3 have been merged because they are identical.

MODULE 2. PHYSICS

A has been upgraded to match the B3 level. B2 and B2L have been upgraded to match the B1 level.

MODULE 3. ELECTRICAL FUNDAMENTALS

B1 and B2 and B2L have been merged because they are identical. For Category A, 3.6 has been added.

MODULE 4. ELECTRONICS FUNDAMENTALS

Knowledge levels for B3 have been upgraded to match the B1 levels.

MODULE 5. DIGITAL TECHNIQUES/ELECTRONIC - INSTRUMENT SYSTEMS

Merged levels for B1.

MODULE 6. MATERIALS AND HARDWARE

Added: (c) Repair and inspection procedures. - B1 and B3 have been merged.

MODULE 7. MAINTENANCE PRACTICES

M7A and M7B have been merged. B3 has been upgraded to B1. This enables the conversion from a B3.

7.14.3 ‘Additive manufacturing’ has been added.

7.15 has been removed as these skills are specialist and can be gained via separate qualifications.

7.21 ‘Documentation & communication’: this new chapter is inserted to show compliance with 66.A.20(b)4.

MODULE 8. BASIC AERODYNAMICS

B3 has been upgraded to match the level of Category A. B1 and B2/B2L have been merged because they are identical.

8.4 High-speed airflow' has been added.

MODULE 9. HUMAN FACTORS

The title has been amended because there is no A/B version any longer.

B1, B2 and B3 have been merged because they are identical.

9.9 'Safety management' has been added (ref. NPA 2013-19).

9.10 'The "Dirty Dozen" and risk mitigation' has been added.

MODULE 10. AVIATION LEGISLATION

B1, B2, B2L and B3 have been merged because they are identical.

The following have been added:

10.4 'Independent certifying staff' has been added to increase awareness of scope and responsibilities of independent certifying staff.

10.8 Added to include 'Oversight principles in continuing airworthiness' has been added to increase awareness of the role of the regulator and its importance in the aviation system.

10.9 Amended to include 'Maintenance and certification beyond the current EU regulations (if not superseded by EU requirements)'

10.10 'Cybersecurity in aviation maintenance' is added to keep up to date with new methods of recording aircraft documentation and requires an understanding of the security required.

MODULE 11. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEM

Modules 11A/B/C have been merged.

Improved subdivision of the subjects.

ATA chapters added.

MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS

ATA chapters added.

MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

Improved subdivision of the subjects.

ATA chapters added.

MODULE 14. PROPULSION

Engines propulsion subjects added.

14.3 ‘Propeller systems’ has been added.

MODULE 15. GAS TURBINE ENGINE

15.15 ‘Alternate turbine constructions’ replaces ‘Power Augmentation Systems’.

MODULE 16. PISTON ENGINE

B3 knowledge levels have been amended to match B1 knowledge levels.

16.14 ‘Alternative piston engine constructions’ has been added.

MODULE 17. PROPELLER

M17A and 17B have been merged.

B3 knowledge levels have been amended to match B1 knowledge levels.

MODULE 18. ELECTRIC POWERPLANT is added.

Introduction of a new point 3. into Appendix I proposing different but appropriate training methods to be determined for each course or part thereof with regard to the scope and objectives of each training phase, taking into consideration the benefits and the limits of the available training methods.

Appendix II — Basic Examination Standard (except for category L licence)

1. General

1.1. All basic examinations mustshall be carried out using the multi-choice question format and essay questions as specified below. The incorrect alternatives mustshall seem equally plausible to anyone ignorant of the subject. All of the alternatives mustshall be clearly related to the question and of similar vocabulary, grammatical construction and length. In numerical questions, the incorrect answers mustshall correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they mustshall not be mere random numbers.

1.2. Each multi-choice question mustshall have three alternative answers of which only one shall be the correct answer and the candidate mustshall 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 mustshall be allowed 20 minutes to answer each such question.

1.4. Suitable essay questions mustshall 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 mustshall 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 mustshall not be used to determine whether a candidate has passed.

1.11. An examination in a ~~failed~~ module may not be retaken earlier than ~~for at least~~ 90 days following the date of the failed ~~module~~ examination in that module, except in the case of a maintenance training organisation approved in accordance with Annex IV (Part-147) which ~~conducts~~ delivers 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.

(i) Basic knowledge examinations with a maximum allowed time of more than 90 or more than 180 minutes may be split in two or three partial exams respectively.

Each partial exam must:

(a) be complementary to the other partial exam or exams taken by the candidate, ensuring that the combination of partial exams meets the examination requirements for the subject module;

(b) be of similar allowed time;

(c) be passed with 75 % or more of the questions answered correctly;

(d) contain a number of questions that is a multiple of four;

(e) be listed on the same certificate of recognition issued after the last partial exam has been successfully passed. That certificate of recognition must list the dates and the results of the partial exams – without averaging the results;

(f) be taken within the same organisation, following the normal examination provisions for retaking failed exams.

(ii) 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.

1.13. The maximum number of ~~consecutive~~ attempts for each ~~module~~ examination is three in a 12-month rolling period. ~~Further sets of three attempts are allowed with a 1 year waiting period between sets.~~ The applicant ~~must~~~~shall confirm in writing~~ provide a written statement to the approved maintenance training organisation or the CAA to which they apply for an examination, the number and dates of attempts during the ~~last year~~ 12 months preceding examination, and the organisation, if not ~~or~~ the CAA, where these attempts took place. The maintenance training organisation or the CAA is responsible for checking the number of attempts within the applicable timeframes.

1.14 While it is accepted that the subject matter of the questions may be the same, the questions used as part of the training programme, including the MBT learning programme, must not be used in examinations.

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, B2, B2L and B3: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

~~Category 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 and B3: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

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

Category B1, 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.~~

Category B1, 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 and B3: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category 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 and B3: ~~16~~20 multi-choice and 0 essay questions. Time allows 2~~0~~ minutes.

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

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

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 and B3: ~~72~~80 multi-choice and 0 essay questions. Time allowed ~~9~~100 minutes.

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 7~~A~~ — MAINTENANCE PRACTICES

Category A: 7~~2~~6 multi-choice and 2 essay questions. Time allowed 9~~0~~5 minutes plus 40 minutes.

Category B1 and B3: 80 multi-choice and 2 essay questions. Time allowed 100 minutes plus 40 minutes.

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, B1, B2, B3 and B2L: 2~~0~~4 multi-choice and 0 essay questions. Time allowed ~~25~~30 minutes.

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

~~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 9~~A~~ — HUMAN FACTORS

Category A, B1, B2, B3 and B2L: 2~~0~~8 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.~~

~~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, B2, B3 and B2L: 4~~0~~4 multi-choice and 1 essay question. Time allowed 5~~0~~5 minutes ~~plus 20 minutes~~.

~~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.~~

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

Category A1: 108 multi-choice and 0 essay questions. Time allowed 135 minutes.

Category A2: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

Category B1.1: 140 multi-choice and 0 essay questions. Time allowed 175 minutes.

Category B1.2 and B1.E: 100 multiple-choice and 0 essay questions. Time allowed 125 minutes.

Category B3: 60 multiple-choice and 0 essay questions. Time allowed 75 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 B1.3 and B1.4: 128 multi-choice and 0 essay questions. Time allowed 160 minutes.

2.13. MODULE 13 — AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

Category B2: 188~~0~~ multiple-choice and 0 essay questions. Time allowed: 22~~-~~35 minutes. Questions and time allowed may be split into two examinations, as appropriate.

Category B2L:

Table: 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~~32	~~35~~40
COM/NAV (Submodule 13.4(a))	24	30
INSTRUMENTS	20	25

(Submodule 13.8)		
AUTOFLIGHT (Submodules 13.3(a) and 13.7)	28	35
SURVEILLANCE (Submodule 13.4(b))	~~8~~20	~~10~~25
AIRFRAME SYSTEMS (Submodules 13.11 to 13.18)	~~32~~52	~~40~~65

2.14. MODULE 14 — PROPULSION

Category B2 and B2L: ~~24~~32 multiple-choice and 0 essay questions. Time allowed ~~3~~40 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

Category A1 and A3: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

Category B1.1 and B1.3: 92 multi-choice and 0 essay questions. Time allowed 115 minutes.

2.16. MODULE 16 — PISTON ENGINE

Category A and A4: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

Category B3, B1.2 and B1.4: 7~~2~~6 multi-choice and 0 essay questions. Time allowed 9~~0~~5 minutes.

~~Category B3: 68 multi-choice and 0 essay questions. Time allowed 85 minutes.~~

2.17. MODULE 17~~A~~ — PROPELLER

Category A1 and A2: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

Category B3, B1.1 and B1.2: 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.~~

2.18. MODULE 18 – ELECTRIC POWER PLANT

Category B1.E: 76 multiple-choice and 0 essay questions. Time allowed 95 minutes.

0201.22 – Intent of proposed changes – Appendix II to Part 66.
Point 1 1.11 The incorrect term ‘failed module’ is replaced by ‘failed examination’ to ensure clarity between a failed module and failed examination. 1.12 Is amended to provide further clarity on the requirements of partial exams to provide clarity that, where basic knowledge examinations with a maximum allowed time of more than 90 or more than 180 minutes, these exams may be split in two or three partial exams. The change clarifies that when these exams are split, each partial exam is to meet the requirements as outlined in the proposed wording for point 1.12 (a) to (f). 1.13 amended to allow for a 12 month rolling period rather than a fixed 12 months between sets of 3. The text is improved/expanded to specify the conditions for splitting large modules and the interval between examination attempts. New point 1.14 is added to ensure any questions used as part of the training course, including MBT, cannot be used for the exams. Point 2. The number of questions has been recalculated according to the amended modules in Appendix I. This has been done to reflect the changes to the module syllabus and the changes to enable easier movement between licence (sub)category(ies). This has resulted in time changes to account for the change of questions.

Appendix III — Aircraft type training and examination standard — on-the-job training (OJT)

~~On the job training~~

1. General

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

(a) Theoretical training and examination mustshall comply with the following requirements:

(i) Mustshall 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 CAA.

(ii) Mustshall 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 existing ~~available~~, the ~~relevant~~ elements defined in the ~~mandatory part of the~~ operational suitability data (OSD) 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 mustshall be at the category B1 or B2 level.

(iv) Mustshall have been started and completed within the 3 years preceding the application for a type rating endorsement.

(b) Practical training and assessment mustshall comply with the following requirements:

(i) Mustshall 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 CAA.

(ii) Mustshall 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 existing ~~available~~, the ~~relevant~~ elements defined in the ~~mandatory part of the operational suitability data~~ OSD established in accordance with Regulation (EU) No 748/2012.

(iii) Mustshall include a representative cross section of maintenance activities relevant to the aircraft type.

(iv) Mustshall include demonstrations using equipment, components, maintenance, ~~simulators~~ simulation training devices (MSTD's), ~~other~~ maintenance training devices (MTDs), or real aircraft.

(v) Mustshall 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:

(a) two different aircraft type ratings of the same manufacturer as determined by the CAA; or

(b) two different licence categories in respect of the same aircraft type rating.

(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 mustshall 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.

(iv) the Differences training must have been started and completed within 3 years preceding the application for the new type rating in the same category (as per point (a)) or for the new licence category (as per point (b)).

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;

(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.

An appropriate training method, or combination of training methods, must be determined for the entire course or for each of its parts with regard to the scope and objectives of each training phase and taking into consideration the benefits and limitations of the available training methods.

Multimedia-based training (MBT) methods may be used in order to achieve the training objectives either in a physically or in a virtually controlled environment.

3.1. Theoretical element

(a) Objective: On completion of a theoretical training course the student mustshall 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 in accordance with ~~according to approved~~ maintenance data. The student mustshall be able to 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 mustshall be at the higher level.

(c) Duration: The theoretical training minimum tuition hours are contained in the following table:

Category	Hours
Aeroplanes (*) with a maximum take-off mass above 30000 kg:	
B1.1	150
B1.2	120

B2	100
C	30
Aeroplanes (*) with a maximum take-off mass equal or less than 30000 kg and above 5700 kg:	
B1.1	120
B1.2	100
B2	100
C	25
Aeroplanes (*) with a maximum take-off mass of 5700 kg and below (**)	
B1.1	80
B1.2	60
B1.E	60
B2	60
C	15
Helicopters (*) (***)	
B1.3	120
B1.4	100
B2	100
C	25
Aircraft not mentioned above	
B1, B2 and C	OSD
(*) Aeroplane with piston or turbine engine or electric power plant or helicopter with piston or turbine engine. (**) For non-pressurised aeroplanes below 2 000 kg MTOM with piston-engine or electric power plant, the minimum duration can be reduced by 50 %. (***) For helicopters in Group 2 (as defined in point 66.A.5), the minimum duration can be reduced by 30 %.	

In the table above, “OSD” means as defined in the operational suitability data established in accordance with UK Regulation (EU) No 748/2012, taking into consideration a report from the applicant for, or holder of, the aircraft type certificate that contains an assessment of the required theoretical elements of knowledge of the aircraft, considering the applicable licence (sub)category on which the aircraft type would be permitted for endorsement in accordance with point 66.A.3.

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 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 CAA mustshall 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 mustshall 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 mustshall be justified to the CAA by the training needs analysis as described above. In addition, the course must describe and justify the following:

— The minimum physical and/or virtual attendance required to the trainee, in order to meet the objectives of the course.

— The maximum number of hours of physical and/or virtual training per day, taking into account pedagogical and human factors principles.

If the minimum attendance required is not met, the certificate of recognition mustshall 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 mustshall be covered. Additional elements introduced due to type variations, technological changes, etc. mustshall also be included.

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

If it exists, the minimum syllabus of the operational suitability data (OSD), established in accordance with UK Regulation (EU) No 748/2012, must be included.

Level Chapters	Aeroplanes turbine		Aeroplanes piston		Aeroplanes with electric power plant		Helicopters turbine		Helicopters piston		Avionics
Licence category.	B1.1	C	B1.2	C	B1.E	C	B1.3	C	B1.4	C	B2
Introduction module:											
05 Time limits/maintenance checks	1	1	1	1	1	1	1	1	1	1	1
06 Dimensions/Areas (MTOM, etc.)	1	1	1	1	1	1	1	1	1	1	1
07 Lifting and Shoring	1	1	1	1	1	1	1	1	1	1	1
08 Levelling and weighing	1	1	1	1	1	1	1	1	1	1	1

09 Towing and taxiing	1	1	1	1	1	1	1	1	1	1	1
10 Parking/mooring, Storing and Return to Service	1	1	1	1	1	1	1	1	1	1	1
11 Placards and Markings	1	1	1	1	1	1	1	1	1	1	1
12 Servicing	1	1	1	1	1	1	1	1	1	1	1
20 Standard practices — only type particular	1	1	1	1	1	1	1	1	1	1	1
Helicopters											
18 Vibration and Noise Analysis (Blade tracking)	—	—	—	—	—	—	3	1	3	1	—
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	—
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 Standard practices and structures (damage classification, assessment and repair)	3	1	3	1	3	1	—	—	—	—	1
53 Fuselage	3	1	3	1	3	1	—	—	—	—	1
54 Nacelles/Pylons	3	1	3	1	3	1	—	—	—	—	1
55 Stabilisers	3	1	3	1	3	1	—	—	—	—	1
56 Windows	3	1	3	1	3	1	—	—	—	—	1
57 Wings	3	1	3	1	3	1	—	—	—	—	1
~~27A Flight Control Surfaces (All)~~	~~3~~	~~1~~	~~3~~	~~1~~	~~3~~	~~1~~	—	—	—	—	~~1~~
52 Doors	3	1	3	1	3	1	—	—	—	—	1
Zonal and Station Identification Systems.	1	1	1	1	1	1	1	1	1	1	1
Airframe systems:											
21 Air Conditioning	3	1	3	1	3	1	3	1	3	1	3
21A Air Supply	3	1	3	1	3	1	3	1	3	1	2
21B Pressurisation	3	1	3	1	3	1	3	1	3	1	3
21C Safety and Warning Devices	3	1	3	1	3	1	3	1	3	1	3
22 Autoflight	2	1	2	1	2	1	2	1	2	1	3
23 Communications	2	1	2	1	2	1	2	1	2	1	3
24 Electrical Power	3	1	3	1	3	1	3	1	3	1	3
25 Equipment and Furnishings	3	1	3	1	3	1	3	1	3	1	1

25A Electronic Equipment including emergency equipment	1	1	1	1	1	1	1	1	1	1	3
26 Fire Protection	3	1	3	1	3	1	3	1	3	1	3
27 Flight Controls	3	1	3	1	3	1	3	1	3	1	2
27A Sys. Operation: Electrical/Fly-by-Wire	3	1	—	—	3	1	—	—	—	—	3
28 Fuel Systems	3	1	3	1	-	-	3	1	3	1	2
28A Fuel Systems — Monitoring and indicating	3	1	3	1	-	-	3	1	3	1	3
29 Hydraulic Power	3	1	3	1	3	1	3	1	3	1	2
29A Hydraulic Power — Monitoring and indicating	3	1	3	1	3	1	3	1	3	1	3
30 Ice and Rain Protection	3	1	3	1	3	1	3	1	3	1	3
31 Indicating/Recording Systems	3	1	3	1	3	1	3	1	3	1	3
31A Instrument Systems	3	1	3	1	3	1	3	1	3	1	3
32 Landing Gear	3	1	3	1	3	1	3	1	3	1	2
32A Landing Gear — Monitoring and indicating	3	1	3	1	3	1	3	1	3	1	3
33 Lights	3	1	3	1	3	1	3	1	3	1	3
34 Navigation	2	1	2	1	2	1	2	1	2	1	3
35 Oxygen	3	1	3	1	3	1	—	—	—	—	2
36 Pneumatic	3	1	3	1	3	1	3	1	3	1	2
36A Pneumatic — Monitoring and indicating	3	1	3	1	3	1	3	1	3	1	3
37 Vacuum	3	1	3	1	3	1	3	1	3	1	2
38 Water/Waste	3	1	3	1	3	1	—	—	—	—	2
41 Water Ballast	3	1	3	1	3	1	—	—	—	—	1
42 Integrated modular avionics	2	1	2	1	2	1	2	1	2	1	3
44 Cabin Systems	2	1	2	1	2	1	2	1	2	1	3
45 On-Board Maintenance System (or covered in 31)	3	1	3	1	3	1	3	1	—	—	3
46 Information Systems	2	1	2	1	2	1	2	1	2	1	3
47 Nitrogen generation system	3	1	3	1	-	-	-	-	-	-	-
50 Cargo and Accessory Compartments	3	1	3	1	3	1	3	1	3	1	1
55/57 Flight control surfaces (All)	3	1	3	1	3	1	-	-	-	-	1
Turbine Engine											
70 Standard Practices — Engines,	3	1	—	—	-	-	3	1	—	—	1
70A constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems).	3	1	—	—	-	-	3	1	—	—	1
70B Engine Performance	3	1	—	—	-	-	3	1	—	—	1
71 Powerplant	3	1	—	—	-	-	3	1	—	—	1
72 Engine Turbine/Turbo Prop/Ducted Fan/Unducted fan	3	1	—	—	-	-	3	1	—	—	1
73 Engine Fuel and Control	3	1	—	—	-	-	3	1	—	—	1
75 Air	3	1	—	—	-	-	3	1	—	—	1

76 Engine controls	3	1	—	—	-	-	3	1	—	—	1
78 Exhaust	3	1	—	—	-	-	3	1	—	—	1
79 Oil	3	1	—	—	-	-	3	1	—	—	1
80 Starting	3	1	—	—	-	-	3	1	—	—	1
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 Indicating Systems	3	1	—	—	-	-	3	1	—	—	3
49 Auxiliary Power Units (APUs)	3	1	—	—	-	-	—	—	—	—	2
Piston Engine											
70 Standard Practices — Engines	—	—	3	1	-	-	—	—	3	1	1
70A Constructional arrangement and operation (Installation, Carburettors, Fuel injection systems, Induction, Exhaust and Cooling Systems, Supercharging/Turbocharging, Lubrication Systems).	—	—	3	1	-	-	—	—	3	1	1
70B Engine Performance	—	—	3	1	-	-	—	—	3	1	1
71 Powerplant	—	—	3	1	-	-	—	—	3	1	1
73 Engine Fuel and Control	—	—	3	1	-	-	—	—	3	1	1
76 Engine Control	—	—	3	1	-	-	—	—	3	1	1
79 Oil	—	—	3	1	-	-	—	—	3	1	1
80 Starting	—	—	3	1	-	-	—	—	3	1	1
81 Turbines	—	—	3	1	-	-	—	—	3	1	1
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
Electric Power Plant											
Electric engines	-	-	-	-	3	1	-	-	-	-	-
Fuel cell and related systems	-	-	-	-	3	1	-	-	-	-	-
Batteries	-	-	-	-	3	1	-	-	-	-	-
Auxiliary systems to the electric power plant	-	-	-	-	3	1	-	-	-	-	-
Propellers											
60A Standard Practices — Propeller	3	1	3	1	3	1	—	—	—	—	1
61 Propellers/Propulsion	3	1	3	1	3	1	—	—	—	—	1
61A Propeller Construction	3	1	3	1	3	1	—	—	—	—	—
61B Propeller Pitch Control	3	1	3	1	3	1	—	—	—	—	—
61C Propeller Synchronising	3	1	3	1	3	1	—	—	—	—	1
61D Propeller Electronic control	2	1	2	1	2	1	—	—	—	—	3
61E Propeller Ice Protection	3	1	3	1	3	1	—	—	—	—	—
61F Propeller Maintenance	3	1	3	1	3	1	—	—	—	—	1
Special chapters for aeroplanes with a power plant other than piston/	Definition of special chapters of the theoretical element of the aircraft type training is available in the OSD of the aircraft, established in accordance with UK										

turbine/electric and other than piston/turbine helicopters	Regulation (EU) No 748/2012. For these aircraft, the CAA can also consider as "not required" some of the chapters contained in the above table.
Special chapters for non-conventional aircraft	Definition of special chapters of the theoretical element of the aircraft type training is available in the OSD of the aircraft, established in accordance with UK Regulation (EU) No 748/2012. For these aircraft, the CAA can also consider as "not required" some of the chapters contained in the above table.

~~(f) Multimedia Based Training (MBT) methods may be used to satisfy the theoretical training element either in the classroom or in a virtual controlled environment subject to the acceptance of the CAA.~~

3.2. Practical element

(a) Objective: The objective of practical training is to gain the required competence in performing safe 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, repairs, adjustments, replacements, rigging and functional checks. It includes the awareness of the use of all technical literature and documentation for the aircraft, the use of specialist/special tooling and test equipment for performing removal and replacement of components and modules unique to type, including any on-wing maintenance activity.

(b) Content: At least 50 % of the crossed items in the table below, which are relevant to the particular aircraft type, mustshall be completed as part of the practical training. Tasks crossed represent subjects that are important for practical training purposes to ensure that the operation, function, installation and safety significance of key maintenance tasks is adequately addressed; particularly where these cannot be fully explained by theoretical training alone. Although the list details the minimum practical training subjects, other items may be added where applicable to the particular aircraft type. Tasks to be completed mustshall 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 tasks mustshall also be incorporated and undertaken as appropriate to the aircraft type.

If it exists, the minimum list of practical tasks of the operational suitability data (OSD), established in accordance with UK Regulation (EU) No 748/2012, must be part of the practical elements to be selected.

Glossary of the table: LOC: Location; FOT: Functional/Operational Test; SGH: Service and Ground Handling; R/I: Removal/Installation; MEL: Minimum Equipment List; TS: Trouble Shooting.

Chapters	**B1/2**	**B1**					**B2**				
	LOC	**FOT**	**SGH**	**R/I**	**MEL**	**TS**	**FOT**	**SGH**	**R/I**	**MEL**	**TS**
Introduction module:											
5 Time limits/maintenance checks	X/X	—	—	—	—	—	—	—	—	—	—
6 Dimensions/Areas (MTOM, etc.)	X/X	—	—	—	—	—	—	—	—	—	—
7 Lifting and Shoring	X/X	—	—	—	—	—	—	—	—	—	—
8 Levelling and weighing	X/X	—	X	—	—	—	—	X	—	—	—

9 Towing and taxiing	X/X	—	X	—	—	—	—	X	—	—	—
10 Parking/mooring, Storing and Return to Service	X/X	—	X	—	—	—	—	X	—	—	—
11 Placards and Markings	X/X	—	—	—	—	—	—	—	—	—	—
12 Servicing	X/X	—	X	—	—	—	—	X	—	—	—
20 Standard practices — only type particular	X/X	—	X	—	—	—	—	X	—	—	—
Helicopters:											
18 Vibration and Noise Analysis (Blade tracking)	X/—	—	—	—	—	X	—	—	—	—	—
60 Standard Practices Rotor — only type specific	X/X	—	X	—	—	—	—	X	—	—	—
62 Rotors	X/—	—	X	X	—	X	—	—	—	—	—
62A Rotors — Monitoring and indicating	X/X	X	X	X	X	X	—	—	X	—	X
63 Rotor Drives	X/—	X	—	—	—	X	—	—	—	—	—
63A Rotor Drives — Monitoring and indicating	X/X	X	—	X	X	X	—	—	X	—	X
64 Tail Rotor	X/—	—	X	—	—	X	—	—	—	—	—
64A Tail rotor -Monitoring and indicating	X/X	X	—	X	X	X	—	—	X	—	X
65 Tail Rotor Drive	X/—	X	—	—	—	X	—	—	—	—	—
65A Tail Rotor Drive — Monitoring and indicating	X/X	X	—	X	X	X	—	—	X	—	X
66 Folding Blades/Pylon	X/—	X	X	—	—	X	—	—	—	—	—
67 Rotors Flight Control	X/—	X	X	—	X	X	—	—	—	—	—
Airframe Structure (Helicopter) **Note:** covered under Airframe structures											
25 Emergency Flotation Equipment	X/X	X	X	X	X	X	X	X	—	—	—
Airframe structures:											
51 Standard Practices and Structures (damage classification, assessment and repair)											
53 Fuselage	X/—	—	—	—	—	X	—	—	—	—	—
54 Nacelles/Pylons	X/—	—	—	—	—	—	—	—	—	—	—
55 Stabilisers	X/—	—	—	—	—	—	—	—	—	—	—
56 Windows	X/—	—	—	—	—	X	—	—	—	—	—
57 Wings	X/—	—	—	—	—	—	—	—	—	—	—
~~27A Flight Control Surfaces~~	~~X/—~~	~~—~~	~~—~~	~~—~~	~~—~~	~~X~~	~~—~~	~~—~~	~~—~~	~~—~~	~~—~~
52 Doors	X/X	X	X	—	—	—	—	X	—	—	—
Airframe systems:											
21 Air Conditioning	X/X	X	X	—	X	X	X	X	—	X	X
21A Air Supply	X/X	X	—	—	—	—	X	—	—	—	—
21B Pressurisation	X/X	X	—	—	X	X	X	—	—	X	X
21C Safety and warning Devices	X/X	—	X	—	—	—	—	X	—	—	—
22 Autoflight	X/X	—	—	—	X	—	X	X	X	X	X
23 Communications	X/X	—	X	—	X	—	X	X	X	X	X
24 Electrical Power	X/X	X	X	X	X	X	X	X	X	X	X
25 Equipment and Furnishings	X/X	X	X	X	—	—	X	X	X	—	—

25A Electronic Equipment including emergency equipment	X/X	X	X	X	—	—	X	X	X	—	—
26 Fire Protection	X/X	X	X	X	X	X	X	X	X	X	X
27 Flight Controls	X/X	X	X	X	X	X	X	—	—	—	—
27A Sys. Operation: Electrical/Fly-by-Wire	X/X	X	X	X	X	—	X	—	X	—	X
28 Fuel Systems	X/X	X	X	X	X	X	X	X	—	X	—
28A Fuel Systems — Monitoring and indicating	X/X	X	—	—	—	—	X	—	X	—	X
29 Hydraulic Power	X/X	X	X	X	X	X	X	X	—	X	—
29A Hydraulic Power — Monitoring and indicating	X/X	X	—	X	X	X	X	—	X	X	X
30 Ice and Rain Protection	X/X	X	X	—	X	X	X	X	—	X	X
31 Indicating/Recording Systems	X/X	X	X	X	X	X	X	X	X	X	X
31A Instrument Systems	X/X	X	X	X	X	X	X	X	X	X	X
32 Landing Gear	X/X	X	X	X	X	X	X	X	X	X	—
32A Landing Gear— Monitoring and indicating	X/X	X	—	X	X	X	X	—	X	X	X
33 Lights	X/X	X	X	—	X	—	X	X	X	X	—
34 Navigation	X/X	—	X	—	X	—	X	X	X	X	X
35 Oxygen	X/—	X	X	X	—	—	X	X	—	—	—
36 Pneumatic	X/—	X	—	X	X	X	X	—	X	X	X
36A Pneumatic — Monitoring and indicating	X/X	X	X	X	X	X	X	X	X	X	X
37 Vacuum	X/—	X	—	X	X	X	—	—	—	—	—
38 Water/Waste	X/—	X	X	—	—	—	X	X	—	—	—
41 Water Ballast	X/—	—	—	—	—	—	—	—	—	—	—
42 Integrated modular avionics	X/X	—	—	—	—	—	X	X	X	X	X
44 Cabin Systems	X/X	—	—	—	—	—	X	X	X	X	X
45 On-Board Maintenance System (or covered in 31)	X/X		X	X	X	X	X	X	X	X	X
46 Information Systems	X/X	—	—	—	—	—	X	—	X	X	X
47 Nitrogen generation system	X/X	X	X	X	X	X	X	—	—	—	X
50 Cargo and Accessory Compartments	X/X	—	X	—	—	—	—	—	—	—	—
55/57 Flight Control Surfaces	X/—	—	—	—	—	X	—	—	—	—	—
Turbine/Piston Engine Module:											
70 Standard Practices — Engines — only type particular	—	—	X	—	—	—	—	X	—	—	—
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems)	X/X	—	—	—	—	—	—	—	—	—	—
Turbine engines:											
70B Engine Performance	—	—	—	—	—	X	—	—	—	—	—
71 Power Plant	X/—	X	X	—	—	—	—	X	—	—	—

72 Engine Turbine/Turbo Prop/Ducted Fan/ Unducted fan	X/—	—	—	—	—	—	—	—	—	—	—
73 Engine Fuel and Control	X/X	X	—	—	—	—	—	—	—	—	—
73A FADEC Systems	X/X	X	—	X	X	X	X	—	X	X	X
74 Ignition	X/X	X	—	—	—	—	X	—	—	—	—
75 Air	X/—	—	—	X	—	X	—	—	—	—	—
76 Engine Controls	X/—	X	—	—	—	X	—	—	—	—	—
77 Engine Indicating	X/X	X	—	—	X	X	X	—	—	X	X
78 Exhaust	X/—	X	—	—	X	—	—	—	—	—	—
79 Oil	X/—	—	X	X	—	—	—	—	—	—	—
80 Starting	X/—	X	—	—	X	X	—	—	—	—	—
82 Water Injection	X/—	X	—	—	—	—	—	—	—	—	—
83 Accessory Gearboxes	X/—	—	X	—	—	—	—	—	—	—	—
84 Propulsion Augmentation	X/—	X	—	—	—	—	—	—	—	—	—
Auxiliary Power Units (APUs):											
Auxiliary Power Units (APUs)	X/—	X	X	—	—	X	—	—	—	—	—
Piston Engines:											
70 Standard Practices — Engines — only type particular	—	—	X	—	—	—	—	X	—	—	—
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems)	X/X	—	—	—	—	—	—	—	—	—	—
70B Engine Performance	—	—	—	—	—	X	—	—	—	—	—
71 Power Plant	X/—	X	X	—	—	—	—	X	—	—	—
73 Engine Fuel and Control	X/X	X	—	—	—	—	—	—	—	—	—
73A FADEC Systems	X/X	X	—	X	X	X	X	X	X	X	X
74 Ignition	X/X	X	—	—	—	—	X	—	—	—	—
76 Engine Controls	X/—	X	—	—	—	X	—	—	—	—	—
77 Engine Indicating	X/X	X	—	—	X	X	X	—	—	X	X
78 Exhaust	X/—	X	—	—	X	X	—	—	—	—	—
79 Oil	X/—	—	X	X	—	—	—	—	—	—	—
80 Starting	X/—	X	—	—	X	X	—	—	—	—	—
81 Turbines	X/—	X	X	X	—	X	—	—	—	—	—
82 Water Injection	X/—	X	—	—	—	—	—	—	—	—	—
83 Accessory Gearboxes	X/—	—	X	X	—	—	—	—	—	—	—
84 Propulsion Augmentation	X/—	X	—	—	—	—	—	—	—	—	—
Electric Powerplant											
Electric engines	X/X	X	X	X	X	X	X	—	—	X	—
Fuel cell and related systems	X/X	X	X	X	X	X	X	—	—	X	—
Batteries	X/X	X	X	X	X	X	X	—	—		—
Auxiliary systems to the electric power plant	X/X	X	X	X	X		X	—	X	X	X
Propellers:											
60A Standard Practices — Propeller	—	—	—	X	—	—	—	—	—	—	—
61 Propellers/Propulsion	X/X	X	X	—	X	X	—	—	—	—	—
61A Propeller Construction	X/X	—	X	—	—	—	—	—	—	—	—
61B Propeller Pitch Control	X/—	X	—	X	X	X	—	—	—	—	—
61C Propeller Synchronising	X/—	X	—	—	—	X	—	—	—	X	—

61D Propeller Electronic control	X/X	X	X	X	X	X	X	X	X	X	X
61E Propeller Ice Protection	X/—	X	—	X	X	X	—	—	—	—	—
61F Propeller Maintenance	X/X	X	X	X	X	X	X	X	X	X	X
Special chapters for aeroplanes with a power plant other than piston/turbine/electric and other than piston/turbine helicopters	For the relevant aircraft type, definition of special chapters of the theoretical element of the aircraft type training is available in the OSD of the aircraft, established in accordance with UK Regulation (EU) No 748/2012.										
Special chapters for non-conventional aircraft	For the relevant aircraft type, definition of special chapters of the theoretical element of the aircraft type training is available in the OSD of the aircraft, established in accordance with UK Regulation (EU) No 748/2012.										

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 mustshall be performed, which mustshall 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 mustshall 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 mustshall seem equally plausible to anyone ignorant of the subject. All the alternatives mustshall be clearly related to the question and of similar vocabulary, grammatical construction and length.

(c) In numerical questions, the incorrect answers mustshall correspond to procedural errors such as the use of incorrect sense (+ versus -) or incorrect measurement units. They mustshall not be mere random numbers.

(d) The level of examination for each chapter mustshall 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 mustshall 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 mustshall be at least 1 question per hour of training instruction. The number of questions for each chapter and level shall be proportionate to:

— the effective training hours spent on teaching at that chapter and level,

— in case of student-centred methods, the anticipated average time to complete the training; and

— the learning objectives as given by the training needs analysis.

The CAA 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 mustshall 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 mustshall be a multiple of 4.

(h) Penalty marking (negative points for failed questions) is not to be used.

(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.

(j) Whilst it is accepted that the subject matter of the questions may be the same, the questions used as part of the MBT learning programme must not be used in course or phase examinations.

(k) Following the end of the theory training period, the theory examination must take place within 90 days, except in exceptional circumstances at the discretion of the CAA.

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 mustshall be performed by designated assessors appropriately qualified.

(b) The assessment mustshall evaluate the knowledge and skills of the trainee.

5. Type ~~examination~~ evaluation standard for Group 2 and Group 3 aircraft

Type ~~examination~~ evaluation relative to aircraft of Group 2 or Group 3 mustshall be conducted by training organisations appropriately approved ~~under~~ in accordance with Annex IV (Part-147) or by the CAA.

The evaluation must consist of practical assessment and oral examination and comply with the following requirements:

(a)The practical assessment must determine the candidate’s competence to perform maintenance tasks applicable to the particular aircraft type.

(b)The oral examination must be on a sample of chapters drawn from point 3. ‘Aircraft type training standard’, at the indicated level in point 3.1.(e).

(c) Both oral examinations and practical assessments must ensure that the following objectives are met:

1. properly discuss with confidence the aircraft type 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, 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.

(d) The following conditions apply to the type evaluation:

1. The maximum number of attempts for each examination is three in a 12-month period. 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 must confirm in writing to the maintenance training organisation or the CAA to which they apply for an examination, the number, and dates of attempts during the last 12-month period and the maintenance training organisation or the CAA where these attempts took place. The maintenance training organisation or the CAA is responsible for checking the number of attempts within the applicable time frames.

2. The type evaluation must be passed, and the required practical experience must be completed within the 3 years preceding the application for the rating endorsement on the aircraft maintenance licence.

3. Type evaluation must be performed with at least one examiner present. The examiner(s) must not have been involved in the applicant’s training.

(e) A written and signed report must be prepared and made available to the candidate by the examiner(s) to explain why the candidate has passed or failed.

~~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 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, 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 CAA to which they apply for an examination, the number and dates of attempts during the last year and the maintenance training organisation or the CAA where these attempts took place. The maintenance training organisation or the CAA 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 CAA. 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: OJT shall cover a cross section of tasks acceptable to the 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.~~

6.1 - General

The OJT is the training that the applicant is given on a particular aircraft type in a real workplace, having the possibility to learn maintenance best practices and correct release-to-service procedures. The OJT must~~shall~~ comply with the following requirements:

(a) The list of the OJT tasks and programme must be accepted by the CAA which has issued the maintenance licence before starting the OJT.

(b) The OJT must be conducted at one or more maintenance organisations appropriately approved according to this Regulation for the maintenance of that aircraft type. One of those organisations must control the OJT.

(c) The applicant must have a category A, B or L5 licence before undergoing the OJT or have finished the theoretical type training and cumulated at least 50 % of the basic experience requirement (point 66.A.30) as regards the category of aircraft he or she is trained for.

(d) The applicant must start and complete the OJT within 3 years preceding the application for the first type rating endorsement. At least 50 % of the OJT tasks must take place after the related aircraft theoretical type training has been completed.

(e) The applicant must undergo the OJT under the mentorship of a qualified mentor or mentors, on a one-to-one supervision basis, during which the mentors verify the technical knowledge, the skills, and responsibilities of a typical certifying staff. During the OJT, the mentors transmit knowledge and experience to the applicant, providing the necessary advice, support, and guidance.

(f) Each task must be signed off by the applicant and refer to an actual job card/work sheet, etc. The mentors must verify and countersign off the tasks performed during the OJT, because they must assume the responsibility for the tasks at support staff or certifying staff level, as applicable, depending on the release-to-service procedure.

(g) At the satisfactory completion of the OJT programme, the mentors must issue a recommendation for the final assessment of the applicant to be conducted by designated assessors.

6.2 OJT content and OJT logbook

The OJT must include a series of activities and tasks representative of the aircraft type rating, systems, and licence category applied for and may cover more than one licence category.

The OJT must be documented in an OJT logbook reporting the following:

(a) name of the applicant;

(b) date of birth of the applicant;

(c) the approved maintenance organisation(s) where the OJT was carried out;

(d)aircraft rating and licence categories applied for;

(e)list of tasks, including:

(i)task description;

(ii)reference to job card/work order/aircraft tech log, etc.;

(iii) location of task completion;

(iv) date of task completion;

(v) aircraft registration(s).

(f) names of the mentors (including licence number, if applicable);

(g) a signed recommendation of the mentors for the successive final assessment of the applicant.

6.3

Final assessment of the applicant

The final assessment of the applicant may only be performed once the OJT logbook has been completed and the mentors have signed the related recommendation.

The designated assessor(s) conducting the final assessment must notify the date of the assessment to the licensing authority well in advance to allow a possible participation of the same authority.

The objective of the final assessment is to verify that the applicant has sufficient technical knowledge as well as the appropriate skills and attitude and that he or she is competent to work independently as type- rated certifying staff on a particular aircraft type.

The final assessment must have a minimum duration of one working day.

(a) The assessment must sample:

(1) the general technical knowledge required for the particular licence category;

(2) the aircraft-type-specific knowledge and skills for the particular licence category;

(3) the understanding of the licence privileges relevant to the aircraft and to the licence category;

(4) the appropriate behaviour and safety attitude of the applicant in relation to the maintenance environment.

(b) The assessment must be recorded in a report containing the following information:

(1) identification data of the applicant;

(2) identification data of the assessor(s);

(3) date and time frame of the assessment;

(4) content of the assessment;

(5) result of the assessment: Passed or Failed.

(6) signature of the assessor(s), the candidate and, if applicable, the independent observer(s).

(c) A failed assessment may be retaken after 3 months or, if additional training has been received and a new recommendation by the mentors has been made, earlier than 3 months if agreed by the assessor(s). After three failed attempts, the complete OJT must be repeated.

6.4

Requirements for mentors and assessors

Mentors and assessors are maintenance staff with the following qualifications:

(i)

Mentors:

— hold a valid aircraft maintenance licence (AML) issued in accordance with this Annex or a valid and fully compliant with ICAO Annex 1 AML in accordance with Appendix IV to Annex II (Part-145), which is acceptable to the CAA;

— have been holding, for at least 1 year, an AML in the same category, when compared to the one for which the OJT is being mentored, that is endorsed with a type rating appropriate to exercise the privileges on the related aircraft;

— have the necessary release or sign-off privileges in the maintenance organisation where the OJT is performed;

— have experience in training other people (such as being apprenticeship instructors, instructors in accordance with Annex IV (Part-147), having received train-the-trainer courses or having any other comparable national qualification, or having a training to do so that is acceptable to the CAA).

(ii)

Assessors of the final assessment:

— hold a valid AML issued in accordance with this Annex or a valid and fully compliant with ICAO Annex 1 AML in accordance with Appendix IV to Annex II (Part-145), which is acceptable to the CAA;

— have been holding, for at least 3 years, an AML in the same category, when compared to the one for which the OJT is being assessed, endorsed with the same or similar aircraft type rating;

— have experience and/or have received training in assessing others (such as being apprenticeship instructors, examiners in accordance with Annex IV (Part-147), having received train-the- trainer courses, or having any other comparable national qualification, or having a training to do so that is acceptable to the CAA);

— must not have been involved as a mentor of the applicant in the OJT; when the assessor has taken part in the OJT performance, then an independent observer must be present during the OJT assessment.

6.5 OJT documentation and records

The satisfactory accomplishment of the OJT must be attested to the applicant with the final assessment report and the OJT logbook.

The OJT documentation must be provided to the CAA to support the application for the issue or change of the licence as laid down in Section B, Subpart B, of this Annex.

Records of the OJT documentation must be kept by the maintenance organisation where the OJT is conducted, in accordance with the procedures agreed with the CAA of the maintenance organisation.

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

0201.23 – Intent of proposed changes - Appendix III to Part 66
The first line ‘On the job training’ is deleted as it is now covered by the main title. The text has been improved to clarify the obligation with the OSD elements, when existing.

Point 1.(b) Amendment to replace ‘other training devices’ with ‘maintenance simulation training devices (MSTDs)’ and ‘maintenance training devices (MTDs)’.

Point 1. (c)(i): the text has been changed to clarify the concept of the differences training.

Point 1. (c)(iv) has been added to clarify the validity period of the differences training.

Point 3 - Introduction of new text proposing different but appropriate training methods to be determined for each course, or part thereof, with regard to the scope and objectives of each training phase whilst taking into consideration the benefits and the limits of the available training methods and allowing the use of MBT methods.

Point 3.1(a) The term ‘approved maintenance data’ has been replaced by ‘maintenance data’.

The table under point 3.1(c) is amended to incorporate electronic powerplant and novel aircraft.

Amendment of point 3.1.(d) by replacing ‘attendance’ by ‘physical and/or virtual classroom attendance’ and ‘hours of training’ by ‘hours of physical and/or virtual classroom training’ in order to reflect the new training methods and tools.

Point 3.1(e) Text has been introduced to clarify the obligation to include the OSD elements, when existing.

3.1(e) – the table is amended to include electric powerplant modules for B1.E. Remaining modules either corrected or moved to account for the syllabus update to incorporate changing technologies in both current and innovative new aircraft.

3.1(e) - the table is amended so that Module 55/57 Flight control surfaces (All) has been moved under Airframe Systems.

3.1(e) - the table is amended so that the module for Nitrogen generation system has been added to Airframe systems.

Point 3.1(f) is deleted as a new Appendix IX is proposed for MBT.

In point 3.2(b), text has been introduced to clarify the obligation to include the OSD elements, when existing.

The table in 3.2(b) it amended in-line with the amendments proposed for the table in 3.1(e).

Amendment of point 4.1(f) to further detail the principle of determination of the minimum number of questions to be used for each chapter in the case of training methods that cannot be expressed in hours of instruction (student-centred, self-paced methods). The term ‘Student-centred’ means that the student is responsible for the learning progress’. What this term means is proposed to be outlined within AMC1 147.A.130(a). This is a commonly understood term for those using distance-synchronous learning, particularly in organisations holding a dual EASA and UK approval as the term is used in EASA regulation.

Addition of a new point 4.1(j) to prevent the questions used as part of the MBT learning programme from being used in course or phase examinations. This ensures that students are tested on their subject knowledge rather than memory of exam questions.

Point 4.1(k) is proposed to control the time frame between theory and examination. Traditionally, training was conducted in-person with examination conducted immediately following training on that module. Now that many schools teach theory remotely, individuals often conduct all the training online before coming to the school to sit all the exams prior to attending practical training. In some cases, it has been a year or more between training and examination. The CAA is aware that there are cases whereby refresher training has been conducted prior to examination focusing on the exam questions in the paper, meaning examination is no longer testing genuine understanding of the subject.

There are proposed amendments to Part 147 that intend to reduce exam fraud, such as examination security in the proposed new 147.A.135. This proposal supports the Part 147

amendments by ensuring that trainees sit examination within a reasonable timeframe following training. The proposed time frame is 90 days, except in exceptional circumstances as approved by the CAA. The intent is to outline examples of exceptional circumstances within the AMC.

The 90 days follows the same timeline as is currently allowed for exam resits. The CAA has noted that it is not feasible for individuals to travel weekly to sit exams immediately following each week of instruction, as was previously common, therefore the 90 days gives the trainee the opportunity to conduct several weeks of distance learning prior to attending for an exam whilst preventing extreme gaps between training and examination.

Point 5

‘Type examination’ changed to ‘type evaluation’ to avoid confusion with the type training examination.

The standard for type evaluation for Group 2 and Group 3 aircraft has been amended.

Point 6 has been amended to add clearer requirements for OJT.

Appendix IV — ~~Experience requirements for extending a Part-66 aircraft maintenance licence~~ Experience and basic knowledge modules, or part modules required, for extending a Part-66 aircraft maintenance licence

A. Experience requirements

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

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

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

Table A

~~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~~	~~—~~

To: From:	A1	A2	A3	A4	B1.1	B1.2	B1.E	B1.3	B1.4	B2	B2L	B3	L1	L2	L3	L4	L5
A1	-	6	6	6	24	6	6	24	12	24	12	6	12	12	12	12	24
A2	6	-	6	6	24	6	6	24	12	24	12	6	12	12	12	12	24
A3	6	6	-	6	24	12	12	24	6	24	12	12	12	12	12	12	24
A4	6	6	6	-	24	12	12	24	6	24	12	12	12	12	12	12	24
B1.1	-	6	6	6	-	6	6	6	6	12	12	6	6	6	12	12	12
B1.2	6	-	6	6	24	-	6	24	6	24	12	-	-	-	12	12	12
B1.E	6	6	6	6	24	6	-	24	12	24	12	6	6	6	12	12	12
B1.3	6	6	-	6	6	6	6	-	6	12	12	6	6	6	12	12	12
B1.4	6	6	6	-	24	6	12	24	-	24	12	6	6	6	12	12	12
B2	6	6	6	6	12	12	12	12	12	-	-	12	6	6	12	12	24
B2L	6	6	6	6	12	12	12	12	12	12	-	12	6	6	12	12	24
B3	6	-	6	6	24	6	12	24	12	24	12	-	-	-	12	12	12
L1	24	24	24	24	36	24	24	36	24	36	24	24	-	6 (*)	12 (*)	12 (*)	24
L2	24	12	24	24	36	12	12	36	24	36	24	12	-	-	12 (*)	12 (*)	24
L3	30	30	30	30	48	30	30	48	30	48	30	30	12 (*)	12 (*)	-	6 (*)	24
L4	30	30	30	30	48	30	30	48	30	48	30	30	12 (*)	12 (*)	-	-	24
L5	24	24	24	24	36	24	24	36	24	36	24	24	12 (*)	12 (*)	12 (*)	-	-

(*) Experience may be reduced by 50 % but allowing a licence with limitations in accordance with point 66.A.45(h)(ii)(3).

B. Basic knowledge modules or part modules required

The purpose of this table is to outline the examinations required to add a new basic (sub)category to an AML granted in accordance with this Annex.

The syllabi prepared in accordance with Appendix I and Appendix VII require different levels of knowledge for different licence categories within a module; therefore, there are additional examinations applicable to certain modules for licence holders wishing to extend an AML granted in accordance with this Annex to include another (sub)category, and an analysis of the module must be conducted to determine the subjects missing or passed at a lower level.

Table B

	A1	A2	A3	A4	B1.1	B1.2	B1.E	B1.3	B1.4	B2	B2L	B3	L1C	L1	L2C	L2	L3H	L3G	L4H	L4G	L5
A1	None	16.	12.	12, 16.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 2, 8, 9.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 9.
A2	11, 15.	None	12, 15.	12.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 2, 8, 9.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 9.
A3	11, 17.	11, 16, 17.	None	16.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 2, 8, 9.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 9.
A4	11, 15, 17.	11, 17.	15.	None	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 9.	All except 2, 8, 9.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 2L.	All except 9.
B1.1	None	16.	12.	12, 16.	None	16.	18.	12.	12, 16.	4, 5, 13,	4, 5, 13SQ, 14SQ	16.	12L.	12L.	8L[2], 12L.	8L[2], 12L.	9L.	10L.	8L[2], 9L, 11L, 12L.	8L[2], 10L, 11L, 12L.	8L[2], 10L, 11L, 12L.
B1.2	11, 15.	None	12, 15.	12.	11, 15.	None	18.	12, 15.	12.	4, 5, 13, 14	4, 5, 13SQ. 14SQ	None	12L.	12L.	8L[1], 12L.	8L[1], 12L.	9L.	10L.	8L[1], 9L, 11L, 12L.	8L[1], 10L, 11L, 12L.	8L[1], 10L, 11L, 12L.

B1.E	11, 15.	11[4], 16	12, 15.	12, 16.	11, 15.	11[4], 16	None	12, 15.	12, 16.	4, 5, 13, 14	4, 5, 13SQ, 14SQ	11[4], 16.	12L.	12L.	8L[3], 12L.	8L[3], 12L.	9L.	10L.	8L[3], 9L, 11L, 12L.	8L[3], 10L, 11L, 12L.	8L[3], 10L, 11L, 12L.
B1.3	11, 17.	11, 16, 17.	None	16.	11, 17.	11, 16, 17.	11, 17, 18.	None	16.	4, 5, 13, 14	4, 5, 13SQ, 14SQ	11, 16, 17.	7L, 12L.	7L, 12L.	7L, 8L[2], 12L.	7L, 8L[2], 12L.	9L.	10L.	8L[2], 9L, 11L, 12L.	8L[2], 10L, 11L, 12L.	8L[2], 10L, 11L, 12L.
B1.4	11, 15, 17.	11, 17.	15.	None	11, 15, 17.	11, 17.	11, 17, 18.	15.	None	4, 5, 13, 14	4, 5, 13SQ, 14SQ	11, 17.	7L, 12L.	7L, 12L.	7L, 8L[1], 12L.	7L, 8L[1], 12L.	9L.	10L.	8L[1], 9L, 11L, 12L.	8L[1], 10L, 11L, 12L.	8L[1], 10L, 11L, 12L.
B2	7, 11, 15, 17.	7, 11, 16, 17.	7, 12, 15.	7, 12, 16.	6, 7, 11, 15, 17.	6, 7, 11, 16, 17.	6, 7, 11, 17, 18.	6, 7, 12, 15.	6, 7, 12, 16.	None	None	6, 7, 11, 16, 17.	5L, 7L.	4L, 5L, 6L, 7L.	5L, 7L, 8L.	4L, 5L, 6L, 7L, 8L.	9L.	10L.	8L, 9L, 11L.	8L, 10L, 11L.	6, 7, [11 or 12[7]], [15, 16 or 18], 17, [8]L8, 10L, 11L
B2L	7, 11, 15, 17.	7, 11, 16, 17.	7, 12, 15.	7, 12, 16.	6, 7, 11, 15, 17.	6, 7, 11, 16, 17.	6, 7, 11, 17, 18.	6, 7, 12, 15.	6, 7, 12, 16.	13SQ, 14SQ.	None	6, 7, 11, 16, 17.	5L, 7L, 12LSQ.	4L, 5L, 6L, 7L, 12LSQ.	5L, 7L, 8L, 12LSQ.	4L, 5L, 6L, 7L, 8L, 12LSQ.	9L.	10L.	8L, 9L, 11L,12L- SQ.	8L, 10L, 11L, 12LSQ.	6, 7, [11 or 12[7]], [15, 16 or 18], 17, 8L[8], 10L, 11L, 12LSQ
B3	11, 15.	11	12, 15.	12.	2, 3, 5, 8, 11, 15.	2, 3, 5, 8, 11.	2, 3, 5, 8, 11, 18.	2, 3, 5, 8, 12, 15.	2, 3, 5, 8, 12.	2, 3, 4, 5, 8, 13, 14.	2, 3, 4, 5, 8, 13SQ, 14SQ.	None	12L.	12L.	8L1, 12L.	8L1, 12L.	9L.	10L.	8L[1],9L, 11L, 12L.	8L[1],10L, 11L, 12L.	2, 3, 5, 8, [11 or 12], 8L[1], 10L, 11L, 12L.

To / From	A1	A2	A3	A4	B1.1	B1.2	B1.E	B1.3	B1.4	B2	B2L	B3	L1C	L1	L2C	L2	L3H	L3G	L4H	L4G	L5
L1C	All	All	All	All	All	All	All	All	All	All	All	All	None	4L, 6L.	8L.	4L, 6L, 8L.	9L.	10L.	8L, 9L, 11L.	8L, 10L, 11L.	All except 12L.
L1	All	All	All	All	All	All	All	All	All	All	All	All	None	None	8L.	8L.	9L.	10L.	8L, 9L, 11L.	8L, 10L, 11L.	All except 12L.

L2C	All	All	All	All	All	All	All	All	All	All	All	All	All	None	4L, 6L.	None	4L, 6L.	9L.	10L.	9L, 11L.	10L, 11L.	All except 8L and 12L.
L2	All	All	All	All	All	All	All	All	All	All	All	All	All	None	None	None	None	9L.	10L.	9L, 11L.	10L, 11L.	All except 8L and 12L.
L3H	All	All	All	All	All	All	All	All	All	All	All	All	All	5L, 7L, 12L.	4L, 5L, 6L, 7L, 12L.	5L, 7L, 8L, 12L.	4L, 5L, 6L, 7L, 8L, 12L.	None	10L.	8L, 11L, 12L.	8L, 10L, 11L, 12L.	All.
L3G	All	All	All	All	All	All	All	All	All	All	All	All	All	5L, 7L, 12L.	4L, 5L, 6L, 7L, 12L.	5L, 7L, 8L, 12L.	4L, 5L, 6L, 7L, 8L, 12L.	9L.	None	8L, 9L, 11L, 12L.	8L, 11L, 12L.	All except 10L.
L4H	All	All	All	All	All	All	All	All	All	All	All	All	All	5L, 7L.	4L, 5L, 6L, 7L.	5L, 7L.	4L, 5L, 6L, 7L.	None	10L.	None	10L.	All except 8L, 11L and 12L.

To / From		A1	A2	A3	A4	B1.1	B1.2	B1.E	B1.3	B1.4	B2	B2L	B3	L1C	L1	L2C	L2	L3H	L3
L4G		All	All	All	All	All	All	All	All	All	All	All	All	5L, 7L.	4L, 5L, 6L, 7L.	5L, 7L.	4L, 5L, 6L, 7L.	9L.	No
L5[10]	B1.1	None	None	12.	12.	None	16[6].	18.	12.	12, 16[6].	4, 5, 13.	4, 5, 13SQ.	16[6].	None	None	None	None	9L.	No
	B1.2	11.	None	12.	12.	11, 15.	None	18.	12, 15.	12.	4, 5, 13.	4, 5, 13SQ.	None	None	None	None	None	9L.	No
	B1.E	11.	None	12.	12.	11, 15.	114, 16[6].	None	12, 15.	12, 16[6].	4, 5, 13.	4, 5,	11[4], 16[6].	None	None	None	None	9L.	No
	B1.3	11.	11.	None	None	11, 17[5].	11, 16[6], 17[5].	11, 17[5], 18.	None	16[6].	4, 5, 13.	4, 5, 13SQ.	11, 16[6], 175.	7L.	7L.	7L.	7L.	9L.	No
	B1.4	11.	11.	None	None	11, 15, 17[5].	11, 17[5].	11, 17[5], 18.	15.	None	4, 5, 13.	4, 5, 13SQ.	11, 17[5].	7L.	7L.	7L.	7L.	9L.	No

Note: "All" means all the relevant elements of the modules identified in point "2. Modularisation" of Appendix I or in point "1. Modularisation" of Appendix VII for the target (sub)category (i.e. the (sub)category mentioned in the row "To").

SQ = it depends on system qualification.

[1]: excluding the subjects related to piston engines and when "From: B1.2" or "From: B3" excluding also the subjects related to propeller.

[2]: excluding the subjects related to turbine engines and when “From: B1.1” excluding also the subjects related to propeller.

[3]: excluding the subjects related to electric engines and propeller.

[4]: submodule “11.10” only.

[5]: submodule “17.4” only.

[6]: submodule “16.12” only.

[7]: modules 12 and 18 cannot be chosen together.

[8]: only some applicable subjects of module 8L are required depending on the module [11 or 12] and [15, 16 or 18] chosen.

[9]: the (sub)module(s) identified in each cell must be taught to the knowledge level identified in point “2. Modularisation” of Appendix I or in point “1. Modularisation” of Appendix VII corresponding to the target (sub)category (i.e. the (sub)category mentioned in the row “To”).

[10]: Use sub-row B1.x based on the B1 subcategory that provided access to the L5 licence (refer to point “1. Modularisation” of Appendix VII).’

0201.24 – Intent of proposed changes - Appendix IV to Part 66
The title of the Appendix has been changed to include basic knowledge modules requirements. The table A for the required experience has been expanded, to include L licences. New point B has been included to provide an explanation of the new table B. Table B is a new table for the required basic knowledge modules or part modules required for each category of licence. It also provides one clear table that enables engineers to easily understand what is required to move between licences.

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).

1. Modularisation

The modules required for each aircraft licence subcategory/category must be in accordance with the following matrix. Where applicable, the subject modules are indicated by an 'X', while 'n/a' means that the subject module is not applicable nor required.

The basic knowledge requirement for L5 must be the same as for any B1 subcategory (as indicated in Appendix I) plus other modules as shown in the matrix.

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 subcategoryplus 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'~~

	Composite sailplanes	Sailplanes	Composite powered sailplanes and composite ELA1 aeroplanes	Powered sailplanes and ELA1 aeroplanes	Hot-air balloons	Gas balloons	Hot-air airships	ELA2 gas airships	Gas airships above ELA2
Subject modules	L1C	L1	L2C	L2	L3H	L3G	L4H	L4G	L5
1L 'Basic knowledge'	X	X	X	X	X	X	X	X	n/a
2L 'Human factors'	X	X	X	X	X	X	X	X	n/a
3L 'Aviation legislation'	X	X	X	X	X	X	X	X	n/a
4L 'Wooden and/or metal-tube structure covered with fabric'	n/a	X	n/a	X	n/a	n/a	n/a	n/a	n/a
5L 'Composite structure'	X	X	X	X	n/a	n/a	n/a	n/a	n/a
6L 'Metallic structure'	n/a	X	n/a	X	n/a	n/a	n/a	n/a	n/a
7L 'Airframe – general, mechanical and electrical systems'	X	X	X	X	n/a	n/a	n/a	n/a	n/a
8L 'Power plant'	n/a	n/a	X	X	n/a	n/a	X	X	X (*)
9L 'Balloons – hot-air balloons'	n/a	n/a	n/a	n/a	X	n/a	X	n/a	n/a
10L 'Balloons – gas (free/tethered) balloons'	n/a	n/a	n/a	n/a	n/a	X	n/a	X	X
11L 'Airships – hot-air/gas AIRSHIPS'	n/a	n/a	n/a	n/a	n/a	n/a	X	X	X
12L 'Radio Com/ELT/Transponder/ Instruments'	X	X	X	X	n/a	n/a	X	X	X

(*) Only applicable propulsion subjects of Module 8L are required; these depend on the B1 subcategory the applicant comes from.

MODULE 1L — BASIC KNOWLEDGE

MODULE 1L — BASIC KNOWLEDGE	Level
1L.1 Mathematics Arithmetic — ~~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.~~ Algebra — ~~Evaluating simple algebraic expressions: addition, subtraction, multiplication and division;~~ ~~— Use of brackets;~~ ~~— Simple algebraic fractions.~~ Geometry ~~— Simple geometrical constructions;~~ ~~— Graphical representation: nature and uses of graphs.~~	1

1L.2 Physics Matter — Nature of matter: the chemical elements; — Chemical compounds; — States: solid, liquid and gaseous; — Changes between states. Mechanics — Forces, moments and couples, representation as vectors; — Centre of gravity; — Tension, compression, shear and torsion; — Nature and properties of solids, fluids and gases. Temperature — Thermometers and temperature scales: Celsius, Fahrenheit and Kelvin; — Heat definition.	1
1L.3 Electrics - AC and DC Circuits — Ohm's law, Kirchoff's voltage and current laws; — Significance of the internal resistance of a supply; — Resistance/resistor; — Resistor colour code, values and tolerances, preferred values, wattage ratings; — Resistors in series and parallel.	1
1L.4 Aerodynamics/aerostatics International Standard Atmosphere (ISA), application to aerodynamics and aerostatics. Aerodynamics — 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. Aerostatics	1

~~Effect on envelopes, wind effect, altitude and temperature effects.~~	
1L.5 Workplace safety and environmental protection ~~— 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

MODULE 2L — HUMAN FACTORS	**Level**
2L.1 General ~~— The need to take human factors into account;~~ ~~— Incidents attributable to human factors/human error;~~ ~~— Murphy's Law.~~	1
2L.2. Human performance and limitations ~~Vision, hearing, information processing, attention and perception, memory.~~	1
2L.3 Social psychology ~~Responsibility, motivation, peer pressure, teamwork.~~	1
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
2L.6 The 'Dirty Dozen' and risk mitigation	2

MODULE 3L — AVIATION LEGISLATION

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 Continuing airworthiness regulations	1
3L.~~2~~3 Repairs and modifications (Part ML) ~~— Approval of changes (repairs and modifications);~~ ~~— Standard changes and standard repairs.~~	2
3L.~~3~~4 Maintenance data (Part ML) ~~— Airworthiness Directives (ADs), Instructions for Continuing Airworthiness (ICA) (AMM, IPC, etc.);~~ ~~— Flight Manual;~~ ~~— Maintenance records.~~	2
3L.5 Licence privileges and how to exercise them properly (Part-66, Part-ML)	2

MODULE 4L — AIRFRAME WOODEN/METAL TUBE AND FABRIC

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;~~ ~~— 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.~~	2

4L.2 Material — 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).	2
4L.3 Identifying damages and defects — Overstress of wood / metal-tubing and fabric structures; — Load transfers; — Fatigue strength and crack testing.	3
4L.4 Performance of practical activities Standard repair and maintenance procedures — 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.	2

MODULE 5L — AIRFRAME COMPOSITE STRUCTURE

MODULE 5L — AIRFRAME COMPOSITE STRUCTURE	**Level**
5L.1 Airframe fibre-reinforced plastic (FRP) — Basic principles of FRP construction; — Resins (Epoxy, polyester, phenolic resins, vinyl ester resins); — Reinforcement materials glass, aramide and carbon fibres, features; — Fillers;	2

— 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.	
5L.2 Material — 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; — Paint assembly and repair technologies; — Support materials; — Honeycombs (paper, FRP, metal), balsa wood, Divinycell (Contizell), development trends.	2
5L.3 Assembly of Fibre-Reinforced Composite-Structure Airframes — Solid shell; — Sandwiches; — Assembly of aerofoils, fuselages, control surfaces.	2

5L.43 Identifying Damages and Defects ~~— 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.~~	3
5L.4 Standard repair and maintenance procedures	3
~~5L.5 Mold making — Plaster molds, mold ceramics;~~ ~~— GFK molds, Gel-coat, reinforcement materials, rigidity problems;~~ ~~— Metal molds;~~ ~~— Male and female molds.~~	~~2~~
~~5L.6 Performance of practical activities — 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;~~ ~~— 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;~~	~~2~~

— Performance of 100-hour/annual inspections on an FRP airframe.	

MODULE 6L — AIRFRAME METALIC STRUCTURE

MODULE 6L — AIRFRAME METALIC STRUCTURE	**Level**
6L.1 Airframe metal Metallic airframe — 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.	2
6L.2 Materials — Steel and its alloys; — Light metals and their light alloys; — Rivet materials; — Plastics; — Colours and paints; — Metal adhesives;	2

— Types of corrosion; — Covering materials and technologies (natural and synthetic).	
6L.3 Identifying damages and defects — Overstressed metal airframes, levelling, measurement of symmetry; — Load transfers; — Fatigue strength and crack test; — Identifying loose riveted joints.	3
6L.4 Standard repair and maintenance procedures	3
6L.4 Assembly of metal- and composite-construction airframes — Skins; — Frames; — Stringers and longerons; — Frame construction; — Problems in multiple-material systems.	2
6L.5 Fasteners — Classifications of fits and clearances; — Metric and imperial measuring systems; — Oversize bolt.	2
6L.6 Performance of practical activities — 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.	2

MODULE 7L — AIRFRAME GENERAL, MECHANICAL AND ELECTRICAL SYSTEMS

MODULE 7L — AIRFRAME GENERAL, MECHANICAL AND ELECTRICAL SYSTEMS	**Level**
7L.1 Theory of flight – gliders and aeroplanes	1
7L.2 Airframe structure – gliders and aeroplanes ~~— 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.	~~2~~1
7L.3 Air conditioning (ATA 21)	1
7L.4 Electrical power, cables and connectors (ATA 24)	2
~~7L.4 Locking equipment~~ ~~— Admissibility of locking methods, locking pins, spring steel pins, locking wire, stop nuts, paint;~~ ~~— Quick-release couplings.~~	~~2~~
7L.5 Equipment and furnishing (ATA 25)	2
7L.6 Fire protection and other safety systems (ATA 26)	2
~~7L.6 Rescue systems~~	~~2~~
7L.~~1~~7 Flight controls (ATA 27)~~system~~ ~~— Cockpit controls: controls in cockpit, colour markings, knob shapes;~~	3

~~— 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.8 Fuel system (ATA 28)	2
7L.9 Hydraulic power (ATA 29)	2
7L.10 Ice and rain protection (ATA 30)	1
7L.11 Landing gear (ATA 32)	2
7L.12 Lights (ATA 33)	2
7L.13 Oxygen (ATA 35)	2
7L.14 Pneumatic/vacuum (ATA 36)	2
7L.15 Water ballast (ATA 41)	2
7L.~~3~~16 Fasteners ~~— Reliability of pins, rivets, screws;~~ ~~— Control cables, turnbuckles;~~ ~~— Quick-release couplings (L'Hotellier, SZD, Poland).~~	2
7L.17 Pipes, hoses and connectors	2
7L.18 Springs	2
7L.19 Bearings	2
7L.20 Transmissions	2
7L.21 Control cables	2
7L.22 Fits and clearances	2
7L.~~5~~23 Aircraft Weight and balance ~~levelling~~	2
~~7L.7 On-board modules — 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;~~	~~2~~

— Sailplanes: acoustic vertical speed indicator, flight recorders, anticollision aid; — Oxygen system.	
7L.8 On-board modules installation and connections — 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.	2
7L.9 Piston engine propulsion Interface between power plant and airframe.	2
7L.10 Propeller — Inspection; — Replacement; — Balancing.	2
7L.11 Retraction system — Propeller position control; — Engine and/or propeller retraction system.	2
7L.24 Workshop practices and tools	2
7L.125 Physical inspection procedures Disassembly, inspection, repair and assembly techniques — 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.	2
7L.26 Abnormal events	2
7L.27 Maintenance procedures	2

MODULE 8L — POWER PLANT

MODULE 8L — POWER PLANT	Level
8L.1 Noise limits — Explanation of the concept of 'noise level'; — Noise certificate; — Enhanced sound proofing; — Possible reduction of sound emissions.	1
8L.2 Piston engines — 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.	2
8L.3 Propeller — 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.	2
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; — Environmentally friendly storage and proper disposal of used oil.	2
8L.10 Documentation — 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.	2
8L.11 Illustrative material — Cylinder unit with valve; — Carburettor; — High-tension magneto; — Differential-compression tester for cylinders; — Overheated/damaged pistons; — Spark plugs of engines that were operated differently.	2
8L.12 Practical experience — 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;	2

— 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 — Four-stroke reciprocating engine and control units; — 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.	2
8L.14 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;	2

— Fuel/air mix during injection; — Mechanically controlled injection; — Electronically controlled injection; — Continuous injection; — Carburettor-injection comparison.	
8L.15 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 Maintenance of aircraft with injection engines — Documentation, manufacturer documents, etc.; — General maintenance instructions (hourly inspections); — Functional tests; — Ground test run; — Test flight; — Troubleshooting in the event of faults in the injection system and their correction.	2
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;	2

— Motor/propeller brake systems; — Motor ventilation systems; — Practical experience of 100-hour/annual inspections.	
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 8L – POWER PLANT		Piston	Turbine	Electrical	Level
8L.1	General engine fundamentals	X	X	X	2
8L.2	Piston engine fundamentals and performance	X			2
8L.3	Piston engine construction	X			2
8L.4	Piston engine fuel system (non-electronic)	X			2
8L.5	Starting and ignition system	X			2
8L.6	Air intake, exhaust and cooling system	X			2
8L.7	Supercharging/turbocharging	X			2
8L.8	Lubrication systems of piston engines	X			2
8L.9	Engine indication systems	X	X	X	2
8L.10	Electric aircraft engines			X	2
8L.11	Turbine engine fundamentals and performance		X		2
8L.12	Inlet and compressor		X		2
8L.13	Combustion chamber, starting and ignition system		X		2
8L.14	Turbine section and exhaust		X		2
8L.15	Other turbine engine components and systems		X		2

8L.16	Turbine engine inspections and ground operation		X		2
8L.17	Propeller	X	X	X	2
8L.18	Full authority digital engine control (FADEC)	X	X	X	2
8L.19	Lubricants and fuels	X	X	X	2
8L.20	Engine and propeller installation	X	X	X	2
8L.21	Engine monitoring and ground operation	X	X	X	2
8L.22	Engine/propeller storage and preservation	X	X	X	2

MODULE 9L — BALLOONS~~/AIRSHIP~~ HOT AIR BALLOONS

~~**MODULE 9L — BALLOON/AIRSHIP HOT AIR**~~	~~**Level**~~
~~9L.1 Basic principles and assembly of hot-air balloons/airships — 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~~
~~9L.2 Practical training Operating controls, maintenance and servicing jobs (according to flight manual).~~	~~3~~
~~9L.3 Envelope — Fabrics;~~ ~~— Seams;~~	~~3~~

— 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.	
9L.4 Burner and fuel system — Burner coils; — Blast, liquid and pilot valves; — Burners/jets; — Pilot lights/vaporisers/jets; — Burner frame; — Fuel lines/hoses; — Fuel cylinders, valves and fittings.	3
9L.5 Basket and basket suspension (incl. alternative devices) — 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.	3
9L.6 Equipment — Fire extinguisher, fire blanket; — Instruments (single or combined).	3

~~9L.7 Minor repairs — Stitching;~~ ~~— Bonding;~~ ~~— Basket hide/trim repairs.~~	~~3~~
~~9L.8 Procedures for physical inspection— 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.~~	~~2~~

MODULE 9L – BALLOONS – HOT-AIR BALLOONS		Level
9L.1	Theory of flight – hot-air balloons	1
9L.2	General airframe of hot-air balloons	2
9L.3	Envelope	3
9L.4	Heater system/burner	3
9L.5	Basket and basket suspension (including alternative devices)	3
9L.6	Instruments	2
9L.7	Equipment	2
9L.8	Hot-air balloon handling and storage	2
9L.9	Disassembly, inspection, repair and assembly techniques	3

MODULES 10L — BALLOONS~~/AIRSHIP~~ GAS (FREE/TETHERED)

MODULES 10L — BALLOON/AIRSHIP GAS (FREE/TETHERED)	Level
10L.1 Basic principles and assembly of gas balloons/airships — Assembly of individual parts; — Envelope and netting material; — Envelope, ripping panel, emergency opening, cords and belts; — Rigid gas valve; — 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.	3
10L.2 Practical training — Operating controls; — Maintenance and servicing jobs (according to AMM and AFM); — Safety rules when using hydrogen as lifting gas.	3
10L.3 Envelope — 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.	3

~~10L.4 Valve — Springs;~~ ~~— Gaskets;~~ ~~— Screwed joints;~~ ~~— Control lines;~~ ~~— Electrostatic discharge paths.~~	~~3~~
~~10L.5 Netting or rigging (without net) — Kinds of net and other lines;~~ ~~— Mesh sizes and angles;~~ ~~— Net ring;~~ ~~— Knotting methods;~~ ~~— Electrostatic discharge paths.~~	~~3~~
~~10L.6 Load ring~~	~~3~~
~~10L.7 Basket (incl. alternative devices) — Kinds of baskets (incl. alternative devices);~~ ~~— Strops and toggles;~~ ~~— Ballast system (bags and supports);~~ ~~— Electrostatic discharge paths.~~	~~3~~
~~10L.8 Ripping cord and valve cords~~	~~3~~
~~10L.9 Mooring line and drag rope~~	~~3~~
~~10L.10 Minor repairs — Bonding;~~ ~~— Splicing hemp ropes.~~	~~3~~
~~10L.11 EquipmentInstruments (single or combined).~~	~~3~~
~~10L.12 Tether cable (tethered gas balloons (TGB) only) — Kinds of cables;~~ ~~— Acceptable damage of cable;~~ ~~— Cable swivel;~~ ~~— Cable clamps.~~	~~3~~
~~10L.13 Winch (tethered gas balloons only) — Kinds of winches;~~ ~~— Mechanical system;~~ ~~— Electrical system;~~ ~~— Emergency system;~~ ~~— Grounding/ballasting of winch.~~	~~3~~

10L.14 Procedures for physical inspection — 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.	2

MODULES 10L – BALLOONS – GAS (FREE/TETHERED) BALLOONS	Level
10L.1 Theory of flight – gas balloons	1
10L.2 General airframe of gas balloons	2
10L.3 Envelope	3
10L.4 Netting	3
10L.5 Valves, parachutes and other related systems	3
10L.6 Load ring	3
10L.7 Basket (including alternative devices)	3
10L.8 Ropes and lines	3
10L.9 Instruments	2
10L.10 Tethered gas balloon (TGB) systems	3
10L.11 Equipment	2
10L.12 Gas balloon handling and storage	2
10L.13 Disassembly, inspection, repair and assembly techniques	3

MODULES 11L — AIRSHIPS HOT AIR/GAS AIRSHIPS

MODULES 11L — AIRSHIPS HOT AIR/GAS	**Level**
11L.1 Basic principles and assembly of small airships — Envelope, ballonnets; — Valves, openings; — Gondola; — Propulsion; — Aircraft Flight Manuals (AFMs) and Aircraft Maintenance Manuals (AMMs); — Rigging and launch preparation.	3

~~11L.2 Practical training — Operating controls;~~ ~~— Maintenance and servicing jobs (according to AMM and AFM).~~	~~3~~
~~11L.3 Envelope — Fabrics;~~ ~~— Ripping panel and cords;~~ ~~— Valves;~~ ~~— Catenary system.~~	~~3~~
~~11L.4 Gondola (incl. alternative devices) — Kinds of gondolas (incl. alternative devices);~~ ~~— Airframe types and materials;~~ ~~— Identification of damage.~~	~~3~~
~~11L.5 Electrical system — 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.~~	~~3~~
~~11L.6 Propulsion — 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.~~	~~3~~
~~11L.7 Equipment — Fire extinguisher, fire blanket;~~ ~~— Instruments (single or combined).~~	~~3~~

MODULES 11L – AIRSHIPS – HOT-AIR/GAS AIRSHIPS	Level
11L.1 Theory of flight and control of airships	2
11L.2 Airship airframe structure – general concepts	2

11L.3 Airship envelope	2
11L.4 Gondola	3
11L.5 Airship flight control (ATA 27/55)	3
11L.6 Electrical power (ATA 24)	3
11L.7 Lights (ATA 33)	2
11L.8 Ice and rain protection	3
11L.9 Fuel systems (ATA 28)	2
11L.10 Engine and propellers in airships	2
11L.11 Airship handling and storage	2
11L.12 Disassembly, inspection, repair and assembly techniques	2

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

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 and FLARM ~~— 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
12L.4 Avionics general test equipment	1

0201.25 – Intent of proposed changes - Appendix VII to Part 66

The table in Appendix VII Point 1 provides the requirements for each module for each licence.

The table for the basic knowledge modules applicable to L subcategories has been improved. The table has been merged with the table of contents. As with Appendix I to Part 66, there has been a correction and improvement of the syllabi content and the applicability of the modules has been changed.

The module syllabus' have been changed to account for the following:

Some of the levels required per category have been adjusted. This has been done for one of two reasons. Firstly, to account for a module change, for example a change in the technology and materials maintained by that licence subcategory. The most significant change has been the change in technology in light aircraft. Secondly, to allow for the easier movement between licence (sub)categories. This is the key reason for the combination of levels in the top of the tables, for example moving B3 to the same column as B1 in module 4.

The descriptive content of the basic knowledge modules is proposed to be moved to AMC level. Major elements of the syllabus (titles of paragraphs, subparagraphs, and knowledge levels) are retained in the regulation.

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 mustshall 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 mustshall be as follows:

(i) module 1L ‘Basic knowledge’: 1220 questions. Time allowed: 125 minutes;

(ii) module 2L ‘Human factors’: 820 questions. Time allowed: 1025 minutes;

(iii) module 3L ‘Aviation legislation’: 248 questions. Time allowed: 350 minutes;

Note delete no. 4, strikethrough not showing.

(iv) module 4L ‘Airframe wooden/metal tube and fabric’: 3240 questions. Time allowed: 450 minutes;

Note delete no. 4, strikethrough not showing.

(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’: 604 questions. Time allowed: 8075 minutes;

Note delete no. 4, strikethrough not showing.

(viii) module 8L ‘Power plant’: 4~~8~~64 questions. Time allowed: ~~60~~80 minutes;

Note delete no. 4, strikethrough not showing.

(ix) module 9L ‘Balloon/Airship hot air’: 36 questions. Time allowed: 45 minutes;

(x) module 10L ‘Balloon/Airship gas (free/tethered)’: 44~~0~~ questions. Time allowed: 55~~0~~ minutes;

(xi) module 11L ‘Airships hot air/gas’: ~~36~~40 questions. Time allowed: 450 minutes;

Note delete no. 4, strikethrough not showing.

(xii) Module 12L ‘Radio Com/ELT/transponder/instruments’: ~~16~~20 questions. Time allowed 25~~0~~ minutes.

0201.26 – Intent of proposed changes - Appendix VIII — Basic examination standard for category L aircraft maintenance licence
Appendix VIII, point (b) The number of questions and timeframes have been recalculated according to the changes of the modules’ content in Appendix VII.

Appendix IX Assessment method for the multimedia-based training (MBT)

Assessment method for the multimedia-based training (MBT)

1.The purpose of this Appendix is to establish the requirements for the assessment and approval by the CAA of any course that includes MBT in accordance with point 66.B.135.

This Appendix may be used for the assessment of other training courses if the CAA decides that the assessment method laid down in this Appendix are appropriate for such other courses.

The organisation must demonstrate that it meets the requirements of the criteria laid down in Table (A), grouped in four categories from (a) to (d). They must clearly identify to the CAA in the table the MBT product being assessed and its production and update versions.

2. On the CAA receiving the demonstration of compliance from the organisation as required in point 1, the CAA Must rate each criterion listed in Table (A).

3. If one or more of the criteria is rated below 3, an alternative learning process must be requested by the CAA in order to enhance the suitability of the product to an acceptable level.

4. Once the CAA has rated each of the individual criteria listed in Table (A), the CAA must rate the overall suitability level for each MBT learning resource.

Table (A): Assessment for the multimedia-based training (MBT)

	Assessment table for the multimedia-based training (MBT)	
Product identification:		
Name:	Version:	
		SCORE (1–5)
Category (a) ‘academic quality’		
Information reliability	1. The information is reliable.	
Information relevance	2. The information is relevant.	
Category (b) ‘pedagogical quality’		

Pedagogical formulation/ construction	3. The quality of the resource simplification is adequate.	
	4. The educational resource presents an appropriate number of overviews and summaries.	
	5. The resource is clearly structured (summaries, plans).	
	6. The structure promotes its use in the pedagogical context.	
Pedagogical strategies	7. The learning objectives are stated.	
	8. The resource includes stimuli to promote learning.	
	9. The resource creates interaction between student and instructor.	
	10. The active engagement of the student is fostered.	
	11. Student-centred learning is present.	
	12. Problem-solving tasks encourage learning.	
	13. The resource enables communication between students.	
	14. The student is able to see their learning progress.	
Student assessment methods	15. The resource provides a self-assessment procedure.	
Category (c) 'didactic quality'		
Learning activities	16. The content refers to real-life situations that the student could possibly face in an actual maintenance environment.	
Learning content	17. The content is adequate to meet the learning objectives.	

Assessment table for the multimedia-based training (MBT)

Product identification:		
Name:	Version:	
		SCORE (1–5)

Category (d) ‘technical quality’

Design	18. The content and organisation of the learning resource includes the appropriate use of colours, interactivity, graphic quality, animations, and illustrations.	
Browsing	19. Navigation methods are clear, consistent, and intuitive.	
Technological aspects	20. Multimedia techniques promote the transfer of information.	
Final score:		

Notes:

The following must be taken into account by the CAA when assessing the MBT against the individual criteria listed in Table (A):

Categories:

Academic quality

The information presented in the multimedia resource must have two characteristics:

Reliability: the information is reliable, current, and relatively free of errors. The information complies with the current regulatory requirements.

Relevance: the information is relevant to the learning objectives defined for the course. It supports the student in achieving the learning objectives.

Pedagogical quality

The MBT emphasises the activities which promote the development of the required knowledge and skills. The main criteria for each product are related to three aspects:

Pedagogical formulation/construction: it is characterised by the quality of simplification, the presence of summaries as well as the use of diagrams, figures, animations, and illustrations. It evaluates whether the structure of the learning resource promotes its use in a pedagogical context. This refers to the ease of orientation (summary, lesson plan), presence of appropriate interactions, usability (back, forward, scroll boxes, etc.), and communication resources (questions and answers, FAQs, forum, etc.)

Pedagogical strategies: teaching and learning styles should be based on active teaching approaches to build meaningful situations related to learning objectives and to learner motivation.

Student assessment methods: methods are implemented to measure the achievement of learning objectives.

Didactic quality

Learning activities: the content refers to real-life situations the student could possibly face in an actual maintenance environment.

Learning content: the content is adequate to meet the learning objectives.

Technical quality

This section assesses the design, browsing and technological aspects of the learning resources:

Design: the content and organisation of the learning resource must promote the appropriate use of colours, interactivity, graphic quality for selected images, animations, and illustrations.

Browsing: while navigating, the student should be able to find a plan, an index, or a detailed table of contents. The suggested choices or guidelines must be clear and the groupings within the menus must be consistent.

Technological aspects: multimedia techniques aim to combine and exploit the capacities of any new technology in education to enhance the transfer of knowledge. Therefore, the system must favour the use of animations, simulations, or any other interactive elements.

0201.27 – Intent of proposed changes - Appendix IX to Part-66
The new Appendix IX ‘Assessment method for the multimedia-based training (MBT)’ is proposed.

In order to provide criteria on how to perform the assessment and the approval of MBT courses, the new Appendix IX to Part-66 is proposed to establish the principles for the assessment of any course that includes MBT, and to introduce the use of the assessment table for multimedia-based training (MBT). The assessment table is intended to serve as an objective tool to support the CAA in the approval process of training courses applying MBT methods.

Although it is mainly intended for the CAA, the assessment table may also be used by training device manufacturers and software developers in order to produce training devices and course software at a standardised suitability level to ensure that the courses using MBT tools meet the standard for approval by the CAA. Part-147 organisations may also benefit from this guidance when deciding which training devices or course software to procure.