

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

COMMISSION REGULATION (EU) 2018/1142

of 14 August 2018

amending Regulation (EU) No 1321/2014 as regards the introduction of certain categories of aircraft maintenance licences, the modification of the acceptance procedure of components from external suppliers and the modification of the maintenance training organisations' privileges

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC⁽¹⁾, and in particular Articles 5(5) and 6(3) thereof,

Whereas:

- (1) Commission Regulation (EU) No 1321/2014⁽²⁾ establishes the implementing rules on the continuing airworthiness of aircraft and aeronautical products, parts and appliances and on the approval of organisations and personnel involved in these tasks.
- (2) In order to ensure a high uniform level of aviation safety, there is a need for a system, established at Union level, for the licencing of certifying staff involved in the maintenance of ELA1 aeroplanes and for aircraft other than aeroplanes and helicopters. That system should be simple and proportionate. Therefore, necessary measures should now be taken in order to set up such a system.
- (3) The existing requirements related to a licence for certifying staff involved in the maintenance of avionics and electrical systems of aircraft other than those in the group of complex aircraft are not proportionate to the lower complexity of those aircraft, in particular because a significant amount of basic knowledge requirements are only relevant in relation to complex aircraft. A new licence for such staff should therefore be introduced. The requirements for that new licence should ensure that the level of safety is not reduced compared to the one achieved with the existing licence. The introduction of that new licence should reduce potential safety risks which could occur as a consequence of insufficient adequately qualified and licensed staff being available for the maintenance tasks concerned.

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

- (4) During performance of maintenance, it is common that persons or organisations use components, parts or material provided by third parties. It is necessary to mitigate the risks associated to the acceptance of such components, parts or material and, in particular, to ensure that the persons and organisations concerned take the necessary measures to ensure proper acceptance, classification and segregation thereof.
- (5) A significant number of fraud cases, showing a deliberate violation of the examination standards set in accordance with Regulation (EU) No 1321/2014, have been reported to the European Aviation Safety Agency ('Agency'). Those cases related to basic knowledge examinations performed by approved maintenance training organisations for students who did not attend the basic training course. This situation has led to important safety concerns, in particular in light of the risk of licence holders releasing to service aircraft after maintenance without having the basic knowledge required. Measures should now be taken to address those safety concerns.
- (6) Pursuant to Regulation (EU) No 1321/2014, operators of complex motor-powered aircraft, in commercial or non-commercial operations, are to ensure that the tasks associated with continuing airworthiness are performed by an approved continuing airworthiness management organisation and that the maintenance of the aircraft and components for installation thereon is performed by an approved maintenance organisation. However, in certain cases, such as in the non-commercial operation of lighter twin-turboprop aeroplanes, the compliance effort that is required from such operators is disproportionate to the benefits that implementing those requirements bring to the safety of their operations. The requirements applicable in those cases should therefore be adapted. Considering those disproportionate compliance efforts, the time needed to adapt those requirements and that not applying them in those cases until they have been adapted is not assessed to pose any significant risks to aviation safety, those requirements should cease to apply for the time being and apply only from an appropriate later date.
- (7) Detailed rules regarding the use of Appendix VI of Annex III to Regulation (EU) No 1321/2014 were deleted by mistake when Regulation (EU) No 1321/2014 was amended by Regulation (EU) 2015/1536⁽³⁾. That mistake should be corrected.
- (8) Certain editorial errors leading to implementation difficulties have been identified in Annex Va to Regulation (EU) No 1321/2014. Those errors should be corrected.
- (9) It is necessary to provide sufficient time to all parties concerned to adapt to the amended regulatory framework created as a consequence of the measures laid down in this Regulation. Those measures should therefore become applicable six months after the date of its entry into force. However, given their purpose and the absence of a need for any significant efforts to adapt by the parties concerned, certain measures should apply without delay. Certain other measures require more adaptation efforts and should therefore apply from an appropriate later date, however, because they entail the transition from regulation primarily under national law to the amended regulatory framework under Union law laid down in this Regulation.
- (10) Regulation (EU) No 1321/2014 should therefore be amended accordingly.

- (11) The measures provided for in this Regulation are in accordance with opinions of the Agency submitted pursuant to Article 19(1) of Regulation (EC) No 216/2008.
- (12) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 65 of Regulation (EC) No 216/2008,

HAS ADOPTED THIS REGULATION:

Article 1

Regulation (EU) No 1321/2014 is amended as follows:

- (1) in Article 5, paragraph 6 is replaced by the following:
 6. Until specific requirements for certifying staff for components are added to this Regulation, the requirements laid down in the national laws in force in the relevant Member State shall continue to apply, except for maintenance organisations located outside the Union where the requirements shall be approved by the Agency;
- (2) Article 8 is amended as follows:
 - (a) in paragraph 2, point (b) is deleted;
 - (b) paragraph 5 is deleted;
 - (c) the following paragraph 7 is inserted:
 7. By way of derogation from paragraph 1, for aeroplanes of 5 700 kg MTOM and below which are equipped with multiple turboprop engines and which are not involved in commercial operations, points M.A.201(g)(2) and (g)(3) of Annex I (Part-M) shall apply from 1 January 2025.;
- (3) Annex I (Part-M) is amended in accordance with Annex I to this Regulation;
- (4) Annex II (Part-145) is amended in accordance with Annex II to this Regulation;
- (5) Annex III (Part-66) is amended in accordance with Annex III to this Regulation;
- (6) Annex IV (Part-147) is amended in accordance with Annex IV to this Regulation;
- (7) Annex Va (Part-T) is amended in accordance with Annex V to this Regulation.

Article 2

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

It shall apply from 5 March 2019.

However,

- (1) Article 1(2)(c), Article 1(7) and point (1) of Annex IV shall apply from 5 September 2018;
- (2) for the maintenance of ELA1 aeroplanes not involved in CAT operations and of aircraft other than aeroplanes and helicopters:

Changes to legislation: There are currently no known outstanding effects for
the Commission Regulation (EU) 2018/1142. (See end of Document for details)

- (a) the requirement for the competent authority to issue aircraft maintenance licences in accordance with Annex III (Part-66), as new or as converted, pursuant to point 66.A.70 of that Annex, shall apply from 1 October 2019;
- (b) the requirement for certifying staff to be qualified in accordance with Annex III (Part-66) laid down in points M.A.606(g) and M.A.801(b)(2) of Annex I (Part-M) and in point 145.A.30(g) and (h) of Annex II (Part-145) shall apply from 1 October 2020.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 14 August 2018.

For the Commission

The President

Jean-Claude JUNCKER

ANNEX I

Annex I is amended as follows:

- (1) the table of contents is amended as follows:
 - (a) Point M.A.501 is replaced by the following:

M.A.501 Classification and installation
 - (b) Point M.A.504 is replaced by the following:

M.A.504 Segregation of components;
- (2) point M.A.501 is replaced by the following:

M.A.501 Classification and installation

 - (a) All components shall be classified into the following categories:
 - (1) Components which are in a satisfactory condition, released on an EASA Form 1 or equivalent and marked in accordance with Subpart Q of Annex I (Part 21) to Regulation (EU) No 748/2012, unless otherwise specified in Annex I (Part 21) to Regulation (EU) No 748/2012 or in this Annex (Part-M).
 - (2) Unserviceable components which shall be maintained in accordance with this Regulation.
 - (3) Components categorised as unsalvageable because they have reached their certified life limit or contain a non-repairable defect.
 - (4) Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the maintenance data and accompanied by evidence of conformity traceable to the applicable standard.
 - (5) Material both raw and consumable used in the course of maintenance when the organisation is satisfied that the material meets the required specification and has appropriate traceability. All materials must be accompanied by documentation clearly relating to the particular material and containing a conformity to specification statement plus both the manufacturing and supplier source.
 - (b) Components, standard parts and material shall only be installed on an aircraft or a component when they are in a satisfactory condition, belong to one of the categories listed in point (a) and the applicable maintenance data specifies the particular component, standard part or material.;
- (3) in point M.A.502, point (d) is replaced by the following:
 - (d) By derogation from point (a) and point M.A.801(b)2, certifying staff referred to in point M.A.801(b)2 may perform, in accordance with component maintenance data, the following:

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- (1) Maintenance other than overhaul of components, while the component is installed or temporarily removed from ELA1 aircraft not used in commercial air transport;
- (2) Overhaul of engines and propellers while installed or temporarily removed from CS-VLA, CS-22 and LSA aircraft not used in commercial air transport.

Component maintenance performed in accordance with point (d) is not eligible for the issuance of an EASA Form 1 and shall be subject to the aircraft release requirements provided for in point M.A.801.;

- (4) point M.A.504 is replaced by the following:

M.A.504 Segregation of components

- (a) Unserviceable and unsalvageable components shall be segregated from serviceable components, standards parts and materials.
- (b) Unsalvageable components shall not be permitted to re-enter the component supply system unless certified life limits have been extended or a repair solution has been approved in accordance with Regulation (EU) No 748/2012.;

- (5) in point M.A.606, point (g) is replaced by the following:

- (g) The maintenance organisation shall have sufficient certifying staff to issue certificates of release to service for aircraft and components provided for in points M.A.612 and M.A.613. The staff shall comply with the following requirements:

- 1. Annex III (Part-66) in the case of aircraft;
- 2. Article 5(6) of this Regulation in the case of components.;

- (6) in point M.A.608, point(c) is replaced by the following:

- (c) The organisation shall inspect, classify and appropriately segregate all incoming components, standard parts and materials.;

- (7) in Appendix VII, the first sentence is replaced by the following:

The following constitutes the complex maintenance tasks referred to in points M.A.801(b)2 and M.A.801(c).

ANNEX II

Annex II is amended as follows:

- (1) the table of contents is amended as follows:

- (a) point 145.A.40 is replaced by the following:
145.A.40 Equipment and tools;
- (b) point 145.A.42 is replaced by the following:
145.A.42 Components;

(2) in point 145.A.30, points (f), (g), (h) and (i) are replaced by the following:

- (f) The organisation shall ensure that personnel who carry out or control a continued-airworthiness non-destructive test of aircraft structures or components, or both, are appropriately qualified for the particular non-destructive test in accordance with the European or equivalent standard recognised by the Agency. Personnel who carry out any other specialised task shall be appropriately qualified in accordance with officially recognised standards. By derogation from this point, personnel referred to in point (g), points (h)(1) and (h)(2), qualified in category B1, B3 or L in accordance with Annex III (Part-66), may carry out and/or control colour contrast dye penetrant tests.
- (g) Any organisation maintaining aircraft, except where stated otherwise in point (j), shall in the case of aircraft line maintenance, have appropriate aircraft-rated certifying staff qualified as category B1, B2, B2L, B3 and L, as appropriate, in accordance with Annex III (Part-66) and point 145.A.35.

In addition such organisations may also use appropriately task-trained certifying staff holding the privileges set out in points 66.A.20(a)(1) and 66.A.20(a)(3)(ii) and qualified in accordance with Annex III (Part-66) and point 145.A.35 to carry out minor scheduled line maintenance and simple defect rectification. The availability of such certifying staff shall not replace the need for category B1, B2, B2L, B3 and L certifying staff, as appropriate.

- (h) Any organisation maintaining aircraft, except where stated otherwise in point (j), shall:
 - 1. in the case of base maintenance of complex motor-powered aircraft, have appropriate aircraft-type-rated certifying staff, qualified as category C in accordance with Annex III (Part-66) and point 145.A.35. In addition, the organisation shall have sufficient aircraft-type-rated staff qualified as category B1 and B2, as appropriate, in accordance with Annex III (Part-66) and point 145.A.35 to support the category C certifying staff.
 - (i) Category B1 and B2 support staff shall ensure that all relevant tasks or inspections have been carried out to the required standard before the category C certifying staff issues the certificate of release to service.
 - (ii) The organisation shall maintain a register of any such category B1 and B2 support staff.
 - (iii) The category C certifying staff shall ensure that compliance with point (i) has been met and that all work required by the customer has been accomplished during the particular base maintenance check or work package, and shall also assess the impact of any work not carried out, with a view to either requiring its accomplishment or agreeing with the operator to defer such work to another specified check or time limit.
 - 2. in the case of base maintenance of aircraft other than complex motor-powered aircraft, have one of the following:

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- (i) appropriate aircraft-rated certifying staff, qualified as category B1, B2, B2L, B3 and L, as appropriate, in accordance with Annex III (Part-66) and point 145.A.35;
 - (ii) appropriate aircraft-rated certifying staff, qualified in category C and assisted by support staff, as set out in point 145.A.35(a)(i).
 - (i) Component certifying staff shall be qualified in accordance with Article 5(6) and point 145.A.35.;
- (3) points 145.A.35(a) and (b) are replaced by the following:
 - (a) In addition to the requirements of points 145.A.30(g) and (h), the organisation shall ensure that certifying staff and support staff have an adequate understanding of the relevant aircraft or components, or both, to be maintained and of the associated organisation procedures. In the case of certifying staff, this shall be accomplished before the issue or reissue of the certification authorisation.
 - 1. ‘Support staff’ means those staff holding an aircraft maintenance licence under Annex III (Part-66) in category B1, B2, B2L, B3 and/or L with the appropriate aircraft ratings, working in a base maintenance environment while not necessarily holding certification privileges.
 - 2. ‘Relevant aircraft and/or components’, means those aircraft or components specified in the particular certification authorisation.
 - 3. ‘Certification authorisation’ means the authorisation issued to certifying staff by the organisation and which specifies the fact that those staff may sign certificates of release to service within the limitations stated in such authorisation on behalf of the approved organisation.
 - (b) Except for the cases listed in points 145.A.30(j) and 66.A.20(a)3(ii), the organisation may only issue a certification authorisation to certifying staff in relation to the basic categories or subcategories and, except for the category A licence, any type rating listed on the aircraft maintenance licence as required by Annex III (Part-66), subject to the licence remaining valid throughout the validity period of the authorisation and to the certifying staff remaining in compliance with Annex III (Part-66).;
- (4) point 145.A.40 is amended as follows:
 - (a) the title is replaced by the following:
145.A.40**Equipment and tools**;
 - (b) point (a) is replaced by the following:
 - (a) The organisation shall have available and use the necessary equipment and tools to perform the approved scope of work.
 - (i) Where the manufacturer specifies a particular tool or equipment, the organisation shall use that tool or equipment, unless the use

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of alternative tooling or equipment is agreed by the competent authority via procedures specified in the exposition.

(ii) Equipment and tools must be permanently available, except in the case of any tool or equipment that is so infrequently used that its permanent availability is not necessary. Such cases shall be detailed in an exposition procedure.

(iii) An organisation approved for base maintenance shall have sufficient aircraft access equipment and inspection platforms/docking as required for the proper inspection of the aircraft.;

(5) point 145.A.42 is replaced by the following:

145.A.42 Components

(a) Classification of components. All components shall be classified into the following categories:

(i) Components which are in a satisfactory condition, released on an EASA Form 1 or equivalent and marked in accordance with Subpart Q of the Annex I (Part 21) to Regulation (EU) No 748/2012, unless otherwise specified in Annex I (Part 21) to Regulation (EU) No 748/2012 or in this Annex II (Part 145).

(ii) Unserviceable components which shall be maintained in accordance with this Regulation.

(iii) Components categorised as unsalvageable because they have reached their certified life limit or contain a non-repairable defect.

(iv) Standard parts used on an aircraft, engine, propeller or other aircraft component when specified in the maintenance data and accompanied by evidence of conformity traceable to the applicable standard.

(v) Material, both raw and consumable, used in the course of maintenance when the organisation is satisfied that the material meets the required specification and has appropriate traceability. All material shall be accompanied by documentation clearly relating to the particular material and containing a conformity to specification statement as well as the manufacturing and supplier source.

(b) Components, standard parts and materials for installation

(i) The organisation shall establish procedures for the acceptance of components, standard parts and materials for installation to ensure that components, standard parts and materials are in satisfactory condition and meet the applicable requirements of point (a).

(ii) The organisation shall establish procedures to ensure that components, standard parts and materials shall only be installed on an aircraft or a component when they are in satisfactory condition, meet the applicable requirements of point (a) and the applicable maintenance data specifies the particular component, standard part or material.

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- (iii) The organisation may fabricate a restricted range of parts to be used in the course of undergoing work within its own facilities, provided procedures are identified in the exposition.
- (iv) Components referred to in point 21.A.307(c) of the Annex I (Part 21) to Regulation (EU) No 748/2012 shall only be installed if considered eligible for installation by the aircraft owner on its own aircraft.
- (c) Segregation of components
 - (i) Unserviceable and unsalvageable components shall be segregated from serviceable components, standard parts and materials.
 - (ii) Unsalvageable components shall not be permitted to re-enter the component supply system, unless certified life limits have been extended or a repair solution has been approved in accordance with Regulation (EU) No 748/2012..

ANNEX III

Annex III is amended as follows:

- (1) in the table of contents the following references to Appendixes VII and VIII are added:
 - Appendix VII — Basic knowledge requirements for category L aircraft maintenance licence
 - Appendix VIII — Basic examination standards for category L aircraft maintenance licence;

- (2) point 66.A.3 is replaced by the following:

66.A.3 Licence categories and subcategories

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

- (a) Category A, divided into the following subcategories:
 - A1 Aeroplanes Turbine;
 - A2 Aeroplanes Piston;
 - A3 Helicopters Turbine;
 - A4 Helicopters Piston.
- (b) Category B1, divided into the following subcategories:
 - B1.1 Aeroplanes Turbine;
 - B1.2 Aeroplanes Piston;
 - B1.3 Helicopters Turbine;
 - B1.4 Helicopters Piston.
- (c) Category B2
The B2 licence is applicable to all aircraft.
- (d) Category B2L

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

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

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

(e) Category B3

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

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

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

(g) Category C

The C licence is applicable to aeroplanes and helicopters.;

(3) point 66.A.5 is replaced by the following:

66.A.5 Aircraft groups

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

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

The Agency 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,

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- those turbojet and multiple-turboprop aeroplanes classified by the Agency in this subgroup because of their lower complexity.
- (ii) subgroup 2b:
 - single turbine engine helicopters,
 - those multiple turbine engine helicopters classified by the Agency in this subgroup because of their lower complexity.
- (iii) subgroup 2c:
 - single piston engine helicopters,
 - those multiple piston engine helicopters classified by the Agency in this subgroup because of their lower complexity.
- (3) Group 3: piston engine aeroplanes other than those in Group 1.
- (4) Group 4: sailplanes, powered sailplanes, balloons and airships, other than those in Group 1.;
- (4) point 66.A.20(a) is amended as follows:
 - (a) points (4) and (5) are replaced by the following:
 - 4. A category B2L aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B2L support staff for the following:
 - maintenance performed on electrical systems;
 - maintenance performed on avionics systems within the limits of the system ratings specifically endorsed on the licence, and
 - when holding the ‘airframe system’ rating, performance of electrical and avionics tasks within power plant and mechanical systems, requiring only simple tests to prove their serviceability.
 - 5. A category B3 aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B3 support staff for the following:
 - maintenance performed on aeroplane structure, power plant and mechanical and electrical systems; and
 - work on avionics systems requiring only simple tests to prove their serviceability and not requiring troubleshooting.;
 - (b) the following points (6) and (7) are added:
 - 6. A category L aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as L support staff for the following:
 - maintenance performed on aircraft structure, power plant and mechanical and electrical systems;
 - work on radio, Emergency Locator Transmitters (ELT) and transponder systems; and
 - work on other avionics systems requiring simple tests to prove their serviceability.

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

Subcategory L2C includes subcategory L1C.

7. A category C aircraft maintenance licence shall permit the holder to issue certificates of release to service following base maintenance of the aircraft. The privileges apply to the aircraft in its entirety.;

(5) in Point 66.A.25, point (a) is replaced by the following:

(a) For licences other than categories B2L and L, an applicant for an aircraft maintenance licence, or for the addition of a category or subcategory to such a licence, shall demonstrate by examination a level of knowledge of the appropriate subject modules in accordance with Appendix I to Annex III (Part-66). The examination shall comply with the standard set out in Appendix II to Annex III (Part-66) and shall be conducted either by a training organisation appropriately approved in accordance with Annex IV (Part-147), or by the competent authority.;

(6) point 66.A.25 is amended as follows:

(a) points (b) and (c) are replaced by the following:

(b) 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 competent authority or as agreed by the competent authority.

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 competent authority.

(b) the following points (d), (e) and (f) are added:

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

Credits shall be granted in accordance with Subpart E of Section B of this Annex (Part-66).
 - (f) Credits expire 10 years after they were granted to the applicant by the competent authority. The applicant may apply for new credits after expiration.;
- (7) in point 66.A.30(a) the following points (2a) and (2b) are inserted:
- 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 competent authority, as a skilled worker in a technical trade; or
 - (iii) 1 year of practical maintenance experience in operating aircraft, covering the corresponding system rating(s), and completion of a Part-147 approved basic training course.

For the addition of (a) new system rating(s) to an existing B2L licence, 3 months of practical maintenance experience relevant to the new system rating(s) shall be required for each system rating added.
 - 2b. for category L:
 - (i) 2 years of practical maintenance experience in operating aircraft covering a representative cross section of maintenance activities in the corresponding subcategory;
 - (ii) as a derogation from point (i), 1 year of practical maintenance experience in operating aircraft covering a representative cross section of maintenance activities in the corresponding subcategory, subject to the introduction of the limitation provided for in point 66.A.45(h)(ii)(3).

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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.;

(8) point 66.A.45 is replaced by the following:

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 2 000 kg MTOM and below’.

— For category L, the relevant aircraft ratings are the following:

- (i) for subcategory L1C, the rating ‘composite sailplanes’;
- (ii) for subcategory L1, the rating ‘sailplanes’;
- (iii) for subcategory L2C, the rating ‘composite powered sailplanes and composite ELA1 aeroplanes’;
- (iv) for subcategory L2, the rating ‘powered sailplanes and ELA1 aeroplanes’;
- (v) for subcategory L3H, the rating ‘hot-air balloons’;
- (vi) for subcategory L3G, the rating ‘gas balloons’;
- (vii) for subcategory L4H, the rating ‘hot-air airships’;
- (viii) for subcategory L4G, the rating ‘ELA2 gas airships’;

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- (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 competent authority in accordance with point 66.B.130.
- (c) For other than category C licences, in addition to the requirements of point (b), the endorsement of the first aircraft type rating within a given category/subcategory requires satisfactory completion of the corresponding on-the-job training. This on-the-job training shall comply with Appendix III to Annex III (Part-66), except in the case of gas airships, where it shall be directly approved by the competent authority.
- (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:
 - satisfactory completion of the relevant category B1, B2 or C aircraft type examination in accordance with Appendix III to this Annex (Part-66);
 - in the case of B1 and B2 category, demonstration of practical experience in the aircraft type. In that case, the practical experience shall include a representative cross section of maintenance activities relevant to the licence category.

In the case of a category C rating, for a person qualified by holding an academic degree as specified in point 66.A.30(a)(7), the first relevant aircraft type examination shall be at the category B1 or B2 level.

- (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 shall include a representative cross section of maintenance activities relevant to the licence category and to the applicable aircraft subgroup and, in the case of the B2L licence, relevant to the applicable system rating(s);

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- (iv) by derogation from point (e)(iii), the holder of a B2 or B2L licence, endorsed with a full subgroup 2b, is entitled to be endorsed with a full subgroup 2c.
- (f) For Group 3 and 4 aircraft:
 - (i) the endorsement of the full Group 3 rating for category B1, B2, B2L and C licence holders and the endorsement of the full Group 4 rating for B2 and B2L licence holders require demonstration of practical experience, which shall include a representative cross section of maintenance activities relevant to the licence category and to Group 3 or 4, as applicable;
 - (ii) for category B1, unless the applicant provides evidence of appropriate experience, Group 3 rating shall be subject to the following limitations, which shall be endorsed on the licence:
 - pressurised aeroplanes,
 - metal-structure aeroplanes,
 - composite-structure aeroplanes,
 - wooden-structure aeroplanes,
 - aeroplanes with metal-tubing structure covered with fabric;
 - (iii) by derogation from point (f)(i), the holder of a B2L licence, endorsed with a full subgroup 2a or 2b, is entitled to be endorsed with Groups 3 and 4.
- (g) For the B3 licence:
 - (i) the endorsement of the rating 'piston engine non-pressurised aeroplanes of 2 000 kg MTOM and below' requires demonstration of practical experience, which shall include a representative cross section of maintenance activities relevant to the licence category;
 - (ii) unless the applicant provides evidence of appropriate experience, the rating referred to in point (i) shall be subject to the following limitations, which shall be endorsed on the licence:
 - wooden-structure aeroplanes,
 - aeroplanes with metal-tubing structure covered with fabric,
 - metal-structure aeroplanes,
 - composite-structure aeroplanes.
- (h) For all L licence subcategories, other than L5:
 - (i) the endorsement of ratings requires demonstration of practical experience which shall include a representative cross section of maintenance activities relevant to the licence subcategory;
 - (ii) unless the applicant provides evidence of appropriate experience, the ratings shall be subject to the following limitations, which shall be endorsed on the licence:

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- (1) for ratings ‘sailplanes’ and ‘powered sailplanes and ELA1 aeroplanes’:
 - wooden-structure aircraft covered with fabric,
 - aircraft with metal-tubing structure covered with fabric,
 - metal-structure aircraft,
 - composite-structure aircraft,
- (2) for the rating ‘gas balloons’:
 - other than ELA1 gas balloons; and
- (3) if the applicant has only provided evidence of one-year experience in accordance with the derogation contained in point 66.A.30(a)(2b)(ii), the following limitation shall be endorsed on the licence:

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

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

- (9) in point 66.A.50, point (a) is replaced by the following:
 - (a) Limitations introduced on an aircraft maintenance licence are exclusions from the certification privileges and, in the case of limitations referred to in point 66.A.45, they affect the aircraft in its entirety.;
- (10) in point 66.A.70, points (c) and (d) are replaced by the following:
 - (c) Where necessary, the aircraft maintenance licence shall contain limitations in accordance with point 66.A.50 to reflect the differences between:
 - (i) the scope of the certifying staff qualification valid in the Member State before the entry into force of the applicable licence category or subcategory provided for in this Annex (Part-66);
 - (ii) the basic knowledge requirements and the basic examination standards laid down in Appendices I and II to this Annex (Part-66).
 - (d) By derogation from point (c), for aircraft not used by licenced air carriers in accordance with Regulation (EC) No 1008/2008, other than complex motor-powered aircraft, and for balloons, sailplanes, motor-powered sailplanes and airships, the aircraft maintenance licence shall contain limitations in accordance with point 66.A.50 to ensure that the certifying staff privileges

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valid in the Member State before the entry into force of the applicable Part-66 licence category/subcategory and those of the converted Part-66 aircraft maintenance licence remain the same.;

- (11) point 66.B.100(b) is replaced by the following:
- (b) The competent authority shall verify an applicant's examination status and/or confirm the validity of any credits to ensure that all module requirements of Appendix I or Appendix VII, as applicable, have been met as required by this Annex (Part-66).;
- (12) point 66.B.110 is replaced by the following:
- 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 competent authority shall endorse the additional basic category, subcategory or, for category B2L, system rating(s) on the aircraft maintenance licence by stamp and signature or shall reissue the licence.
- (b) The record system of the competent authority shall be changed accordingly.
- (c) Upon request by the applicant, the competent authority shall replace a licence in category B2L with a licence in category B2 endorsed with the same aircraft rating(s) when the holder has demonstrated both of the following:
- (i) by examination the differences between the basic knowledge corresponding to the B2L licence held and the basic knowledge of the B2 licence, as set out in Appendix I;
- (ii) the practical experience required in Appendix IV.
- (d) In the case of a holder of an aircraft maintenance licence in subcategory B1.2 endorsed with the Group 3 rating or in category B3 endorsed with the rating 'piston engine non-pressurised aeroplanes of 2 000 kg MTOM and below', the competent authority shall issue, upon application, a fully rated licence in subcategories L1 and L2, with the same limitations as the B1.2/B3 licence held.;
- (13) in point 66.B.115, point (f) is replaced by the following:
- (f) The competent authority shall ensure that compliance with the practical elements of the type training is demonstrated by one of the following:
- (i) by the provision of detailed practical training records or a logbook provided by the organisation which delivered the course directly approved by the competent authority in accordance with point 66.B.130;
- (ii) where available, by a training certificate, covering the practical training element, issued by a maintenance training organisation appropriately approved in accordance with Annex IV (Part-147).;
- (14) in point 66.B.125 point (b), point (1) is replaced by the following:
- (1) for category B1 or C:

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- helicopter piston engine, full group: converted to ‘full subgroup 2c’ plus the aircraft type ratings for those single piston engine helicopters which are in Group 1;
- helicopter piston engine, manufacturer group: converted to the corresponding ‘manufacturer subgroup 2c’ plus the aircraft type ratings for those single piston engine helicopters of that manufacturer which are in Group 1;
- helicopter turbine engine, full group: converted to ‘full subgroup 2b’ plus the aircraft type ratings for those single turbine engine helicopters which are in Group 1;
- helicopter turbine engine, manufacturer group: converted to the corresponding ‘manufacturer subgroup 2b’ plus the aircraft type ratings for those single turbine engine helicopters of that manufacturer which are in Group 1;
- aeroplane single piston engine — metal structure, either full group or manufacturer group: converted to ‘full group 3’. For the B1 licence, the following limitations shall be included: composite-structure aeroplanes, wooden-structure aeroplanes, and metal-tubing and fabric aeroplanes;
- aeroplane multiple piston engines — metal structure, either full group or manufacturer group: converted to ‘full group 3’ plus the aircraft type ratings for those aeroplanes with multiple piston engines of the corresponding full/manufacturer group which are in Group 1. For the B1 licence, the following limitations shall be included: composite-structure aeroplanes, wooden-structure aeroplanes and metal-tubing and fabric aeroplanes;
- aeroplane single piston engine — wooden structure, either full group or manufacturer group: converted to ‘full group 3’. For the B1 licence, the following limitations shall be included: pressurised aeroplanes, metal-structure aeroplanes, composite-structure aeroplanes and metal-tubing and fabric aeroplanes;
- aeroplane multiple piston engines — wooden structure, either full group or manufacturer group: converted to ‘full group 3’. For the B1 licence, the following limitations shall be included: pressurised aeroplanes, metal-structure aeroplanes, composite-structure aeroplanes and metal-tubing and fabric aeroplanes;
- aeroplane single piston engine — composite structure, either full group or manufacturer group: converted to ‘full group 3’. For the B1 licence, the following limitations shall be included: pressurised aeroplanes, metal-structure aeroplanes, wooden-structure aeroplanes and metal-tubing and fabric aeroplanes;
- aeroplane multiple piston engines — composite structure, either full group or manufacturer group: converted to ‘full group 3’. For the B1 licence, the following limitations shall be included: pressurised aeroplanes, metal-structure aeroplanes, wooden-structure aeroplanes and metal-tubing and fabric aeroplanes;
- aeroplane turbine — single engine, full group: converted to ‘full sub-group 2a’ plus the aircraft type ratings for those single turboprop aeroplanes which did not require an aircraft type rating in the previous system and are in Group 1;
- aeroplane turbine — single engine, manufacturer group: converted to the corresponding ‘manufacturer subgroup 2a’ plus the aircraft type ratings for

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- those single turboprop aeroplanes of that manufacturer which did not require an aircraft type rating in the previous system and are in Group 1;
- aeroplane turbine — multiple engines, full group: converted to the aircraft type ratings for those aeroplanes with multiple turboprop engines which did not require an aircraft type rating in the previous system.;
- (15) point 66.B.130 is replaced by the following:
- 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 competent authority 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 competent authority 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 competent authority in all cases. The competent authority 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).;
- (16) in point 66.B.200, point (c) is replaced by the following:
- (c) Basic examinations shall follow the standard specified in Appendices I and II or in Appendices VII and VIII to this Annex (Part-66), as applicable.;
- (17) in point 66.B.305(b), the word ‘Appendix III’ is replaced by the word ‘Appendix I’;
- (18) point 66.B.405 is replaced by the following:
- 66.B.405 Examination credit report**
- (a) The credit report shall include a comparison between the following:
- (i) the modules, submodules, subjects and knowledge levels contained in Appendices I or VII to this Annex (Part-66), as applicable;
- (ii) the syllabus of the technical qualification concerned, relevant to the particular category being sought.
- This comparison shall state whether compliance has been demonstrated and contain the justifications for each statement.
- (b) Credits for examinations, other than basic knowledge examinations carried out in maintenance training organisations approved in accordance with Annex IV (Part-147), can only be granted by the competent authority of the Member State in which the qualification has been obtained, unless a formal agreement exists with such competent authority advising otherwise.
- (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 competent authority shall check on a regular basis whether the following have changed:

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- (i) the national qualification standard;
- (ii) Appendices I or VII to this Annex (Part-66), as applicable.

The competent authority shall also assess if changes to the credit report are consequently required. Such changes shall be documented, dated and recorded.;

(19) in point 66.B.410, point (c) is replaced by the following:

- (c) Upon expiration of the credits, the applicant may apply for new credits. The competent authority shall extend the validity of the credits for an additional period of 10 years without further consideration if the basic knowledge requirements defined in Appendices I or VII to this Annex (Part-66), as applicable, have not been changed.;

(20) Appendix I is amended as follows:

- (a) in point 1, the title and the first subparagraph are replaced by the following:

Appendix Basic Knowledge Requirements (except for category L I licence)
1. Knowledge levels for category A, B1, B2, B2L, B3 and C aircraft maintenance licences

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

- (b) in point 2, the title, the first subparagraph and the first table are replaced by the following:

2. Modularisation

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

For categories A, B1 and B3:

Subject module	A or B1 aeroplane with:		A or B1 helicopter with:		B3 Piston engine non-pressurised aeroplanes of 2 000 kg MTOM and below
	Turbine engine(s)	Piston engine(s)	Turbine engine(s)	Piston engine(s)	
1	X	X	X	X	X
2	X	X	X	X	X
3	X	X	X	X	X

ANNEX III

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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

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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		

- (c) in the tables of the modules 1, 2, 3, 4, 5, 6, 7A, 8, 9A, 10 and 14, the content of box LEVEL

B2

is replaced by the following:

LEVEL

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B2

B2L

- (d) in the table of module 5, ‘1’ is replaced by ‘—’ from submodule 5.5(a) for the B3 licence;
- (e) in the table of module 7B, ‘—’ is replaced by ‘1’ from submodule 7.4 for the B3 licence;
- (f) in the table of module 7B submodule 7.10, ‘1’ is replaced by ‘2’ for the B3 licence;
- (g) in the table of module 11A submodule 11.8 point (b), ‘1’ is replaced by ‘2’ for the B1.1 licence;
- (h) in the table of module 11A, the context box of the first column of submodule 11.16 is replaced by the following:

11.16 *Pneumatic/Vacuum (ATA 36)*

System lay-out;

Sources: engine/APU (Auxiliary Power Unit), compressors, reservoirs, ground supply;

Pressure and vacuum pumps

Pressure control;

Distribution;

Indications and warnings;

Interfaces with other systems.;

- (i) in the table of module 11A, the context box of the first column of submodule 11.20 is replaced by the following:

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).

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CNS may host functions such as:

- access to pre-departure/departure reports;
- e-mail/intranet/internet access; passenger database.;

(j) in the table of module 11B, submodule 11.8 point (b), ‘3’ is replaced by ‘2’ for the B1.2 licence;

(k) in the table of module 11B, the context box of the first column of submodule 11.16 is replaced by the following:

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.;

(l) in the table of module 12, the context box of the first column of submodule 12.16 is replaced by the following:

12.16 *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.;

(m) module 13 is replaced by the following:

MODULE 13 — AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

		LEVEL
		B2B2L
13.1	<i>Theory of Flight</i>	
(a)	<i>Aeroplane Aerodynamics and Flight Controls</i>	1
Operation and effect of:		
—	roll control: ailerons and spoilers;	
—	pitch control: elevators, stabilators, variable incidence stabilisers and canards; and	
—	yaw control: rudder limiters;	

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Control using elevons, ruddervators; High lift devices: slots, slats, flaps; Drag inducing devices: spoilers, lift dumpers, speed brakes; and Operation and effect of trim tabs, servo tabs and control surface bias.	
(b) <i>High-Speed Flight</i>	1
Speed of sound, subsonic flight, transonic flight, supersonic flight; Mach number, critical Mach number.	
(c) <i>Rotary Wing Aerodynamics</i>	1
Terminology; Operation and effect of cyclic, collective and anti-torque controls.	
13.2 <i>Structures — General Concepts</i>	
Fundamentals of Structural Systems	1
Zonal and Station Identification Systems	2
Electrical bonding	2
Lightning strike protection provision.	2
13.3 <i>Autoflight (ATA 22)</i>	
(a)	3
Fundamentals of automatic flight control including working principles and current terminology; Command signal processing; Modes of operation: roll, pitch and yaw channels; Yaw dampers; Stability Augmentation System in helicopters; Automatic trim control; Autopilot navigation aids interface;	
(b)	3
Autothrottle systems; Automatic landing systems: principles and categories, modes of operation, approach, glideslope,	

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land, go-around, system monitors and failure conditions.	
13.4 <i>Communication/ Navigation (ATA 23/34)</i>	
(a)	3
<p>Fundamentals of radio wave propagation, antennas, transmission lines, communication, receiver and transmitter;</p> <p>Working principles of following systems:</p> <ul style="list-style-type: none"> — 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. 	
(b)	3
<ul style="list-style-type: none"> — Air Traffic Control transponder, secondary surveillance radar; — Traffic Alert and Collision Avoidance System (TCAS); — Weather avoidance radar; — Radio altimeter; 	

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— Automatic Dependent Surveillance — Broadcast (ADS-B).	
(c)	3
— Microwave Landing System (MLS); — Very Low Frequency and hyperbolic navigation (VLF/Omega); — Doppler navigation; — Inertial Navigation System (INS); — ARINC (Aircraft Radio Incorporated) communication and reporting.	
13.5 <i>Electrical Power (ATA 24)</i>	3
Batteries installation and operation; Direct Current (DC) power generation; Alternating Current (AC) power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection; External/Ground power.	
13.6 <i>Equipment and Furnishings (ATA 25)</i>	3
Electronic emergency equipment requirements; Cabin entertainment equipment.	
13.7 <i>Flight Controls (ATA 27)</i>	
(a)	2
Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks; Stall protection systems.	

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(b)	3
System operation: electrical, fly-by-wire.	
13.8 <i>Instruments (ATA 31)</i>	3
Classification; Atmosphere; Terminology; Pressure-measuring devices and systems; Pitot-static systems; Altimeters; Vertical-speed indicators; Airspeed indicators; Machmeters; Altitude-reporting/alerting systems; Air data computers; Instrument pneumatic systems; Direct-reading pressure and temperature gauges; Temperature-indicating systems; Fuel-quantity-indicating systems; Gyroscopic principles; Artificial horizons; Slip indicators; Directional gyros; Ground Proximity Warning Systems (GPWSs); Compass systems; Flight Data Recording Systems (FDRSs); Electronic Flight Instrument Systems (EFISs); Instrument warning systems including master warning systems and centralised warning panels; Stall warning systems and angle of attack-indicating systems; Vibration measurement and indication; Glass cockpit.	
13.9 <i>Lights (ATA 33)</i>	3
External: navigation, landing, taxiing, ice; Internal: cabin, cockpit, cargo; Emergency.	
13.10 <i>On-Board Maintenance Systems (ATA 45)</i>	3

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Central maintenance computers; Data-loading system; Electronic-library system; Printing system; Structure-monitoring system (damage tolerance monitoring).	
13.11 <i>Air Conditioning and Cabin Pressurisation (ATA 21)</i>	
13.11.1 <i>Air Supply</i>	2
Sources of air supply including engine bleed, APU and ground cart;	
13.11.2 <i>Air Conditioning</i>	
Air-conditioning systems;	2
Air cycle and vapour cycle machines;	3
Distribution systems;	1
Flow, temperature and humidity control system.	3
13.11.3 <i>Pressurisation</i>	3
Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers.	
13.11.4 <i>Safety and Warning Devices</i>	3
Protection and warning devices.	
13.12 <i>Fire Protection (ATA 26)</i>	
(a)	3
Fire and smoke detection and warning systems; Fire-extinguishing systems; System tests.	
(b)	1
Portable fire extinguisher.	
13.13 <i>Fuel Systems (ATA 28)</i>	
System layout;	1

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

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

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

- 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.

13.21 Cabin Systems (ATA 44)

3

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);

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

<ul style="list-style-type: none"> — Cabin Mass Memory System (CMMS); — Cabin Monitoring System (CMS); — Miscellaneous Cabin Systems (MCSs). <p>CNS may host functions such as:</p> <ul style="list-style-type: none"> — access to pre-departure/ departure reports; — e-mail/intranet/internet access; — passenger database. 	
<p>13.22 <i>Information Systems (ATA 46)</i></p>	3
<p>The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. They include units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller, but they do not include units or components installed for other uses and shared with other systems, such as flight deck printer or general-use display.</p> <p>Typical examples include:</p> <ul style="list-style-type: none"> — Air Traffic and Information Management systems and Network Server systems. — Aircraft general information system; — Flight deck information system; — Maintenance information system; — Passenger cabin information system; — Miscellaneous information systems. 	

- (21) Appendix II is amended as follows:
- (a) the title is replaced by the following:
Appendix II
Basic Examination Standard
(except for category L licence);

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

- (b) in points 2.2.1 to 2.2.10, the words ‘Category B2’ are replaced by the words ‘Category B2 and B2L’;
- (c) points 2.2.13 and 2.2.14 are replaced by the following:

2.13. MODULE 13 — AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

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

Category B2L:

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

2.14. MODULE 14 — PROPULSION

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

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

(22) Appendix III is amended as follows:

- (a) in point 1.(a), point (ii) is replaced by the following:
- (ii) Shall comply, except as permitted by the differences training provided for in point (c), with the standard set out in point 3.1 of this Appendix and, if available, the relevant elements defined in the mandatory part of the operational suitability data established in accordance with Regulation (EU) No 748/2012.;

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

- (b) in point 1.(b), point (ii) is replaced by the following:
 - (ii) Shall comply, except as permitted by the differences training described in point (c), with the standard set out in point 3.2 of this Appendix and, if available, the relevant elements defined in the mandatory part of the operational suitability data established in accordance with Regulation (EU) No 748/2012.;
- (c) in point 3.1(c), the footnotes in the table are replaced by the following:
 - (1) For non-pressurised piston engine aeroplanes below 2 000 kg MTOM, the minimum duration can be reduced by 50 %.
 - (2) For helicopters in Group 2 (as defined in point 66.A.5), the minimum duration can be reduced by 30 %.;
- (d) in point 3.1(e), the level of training for the airframe system 21A ‘Air Supply’, corresponding to the column ‘Helicopters Turbine’, is replaced by the following:

3	1;
---	----

- (e) in point 3.1(e) the level of training for the airframe system 31A ‘Instrument Systems’, corresponding to the column ‘Helicopters piston’, is replaced by the following:

3	1;
---	----

- (23) Appendix IV is replaced by the following:

Appendix IV

Experience requirements for extending a Part-66 aircraft maintenance licence.

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

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

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

To/From	A1	A2	A3	A4	B1.1	B1.2	B1.3	B1.4	B2	B2L	B3
A1	—	6 months	6 months	6 months	2 years	6 months	2 years	1 year	2 years	1 year	6 months
A2	6 months	—	6 months	6 months	2 years	6 months	2 years	1 year	2 years	1 year	6 months
A3	6 months	6 months	—	6 months	2 years	1 year	2 years	6 months	2 years	1 year	1 year

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

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	—;

(24) Appendix V is replaced by the following:

Appendix V

Application Form — EASA Form 19

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

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

APPLICATION FOR INITIAL/AMENDMENT OF/RENEWAL OF PART-66 AIRCRAFT MAINTENANCE LICENCE (AML)	EASA FORM 19
APPLICANT'S DETAILS: Name: Address: Tel: E-mail: Nationality: Date and Place of Birth:	
PART-66 AML DETAILS (if applicable): Licence No: Date of Issue:	
EMPLOYER'S DETAILS: Name: Address: Maintenance Organisation Approval Reference: Tel: Fax:	
APPLICATION FOR: (Tick relevant boxes) Initial AML <input type="checkbox"/> Amendment of AML <input type="checkbox"/> Renewal of AML <input type="checkbox"/> (Sub)categories A B1 B2 B2L B3 C L (see below) Aeroplane Turbine <input type="checkbox"/> <input type="checkbox"/> Aeroplane Piston <input type="checkbox"/> <input type="checkbox"/> Helicopter Turbine <input type="checkbox"/> <input type="checkbox"/> Helicopter Piston <input type="checkbox"/> <input type="checkbox"/> Avionics <input type="checkbox"/> <input type="checkbox"/> See system ratings below Piston engine non-pressurised aeroplanes of MTOM of 2t and below <input type="checkbox"/> Complex motor-powered aircraft <input type="checkbox"/> <input type="checkbox"/> Aircraft other than complex motor-powered aircraft <input type="checkbox"/> <input type="checkbox"/>	
System ratings for B2L licence: 1. autoflight, <input type="checkbox"/> 2. instruments <input type="checkbox"/> 3. com/nav <input type="checkbox"/> 4. surveillance <input type="checkbox"/> 5. airframe systems <input type="checkbox"/>	
L-licence subcategories: L1C: Composite sailplanes <input type="checkbox"/> L1: Sailplanes <input type="checkbox"/> L2C: Composite powered sailplanes and composite ELA1 aeroplanes <input type="checkbox"/> L2: Powered sailplanes and ELA1 aeroplanes <input type="checkbox"/> L3H: Hot-air balloons <input type="checkbox"/> L3G: Gas balloons <input type="checkbox"/> L4H: Hot-air airships <input type="checkbox"/> L4G: ELA2 gas airships <input type="checkbox"/> L5: Gas airships other than ELA2 <input type="checkbox"/>	
Type endorsement/Rating endorsement/Limitation removal (if applicable):	

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

I wish to apply for initial/amendment of/renewal of Part-66 AML, as indicated, and confirm that the information contained in this form was correct at the time of application.

I herewith confirm that:

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

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

Signed: Name:

Date:

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

.....

.....

.....

Experience credits for Part-147 training

.....

.....

.....

Examination credits for equivalent exam certificates

.....

.....

.....

Please enclose all relevant certificates

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

Signed: Name:

Position: Date:

EASA FORM 19 Issue 5

(25)

Appendix VI is amended as follows:

(a) the title is replaced by the following:

Appendix VI – Aircraft Maintenance Licence referred to in Annex III (Part-66) – EASA Form 26;

(b) in the beginning of the Appendix VI and before the existing EASA Form 26 the following text is inserted:

1. An example of the aircraft maintenance licence referred to in Annex III (Part-66) can be found on the following pages.

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

2. The document shall be printed in the standardised form shown but may be reduced in size to allow it being generated by computer. When the size is reduced, care shall be taken to ensure that sufficient space is available in those places where official seals or stamps are required. Computer-generated documents need not have all the boxes incorporated when any such box remains blank, so long as the document can clearly be recognised as an aircraft maintenance licence issued in accordance with Annex III (Part-66).
3. The document may be filled in either in English or the official language of the Member State of the competent authority. In the latter case, a second copy in English shall be attached to the document for any licence holder who needs to use the licence outside that Member State to ensure understanding for the purpose of mutual recognition.
4. Each licence holder shall have a unique licence holder number, established on the basis of a national identifier and an alphanumeric designator.
5. The document may have the pages in a different order to the one of this example and needs not have some or any divider lines as long as the information contained is positioned in such a manner that each page lay-out can clearly be identified with the format of the example of the aircraft maintenance licence contained herein.
6. The document shall be prepared by the competent authority. However, it may also be prepared by any maintenance organisation approved in accordance with Annex II (Part-145), where the competent authority agrees to this and the preparation takes place in accordance with a procedure laid down in the maintenance organisation exposition referred to in point 145.A.70 of Annex II (Part-145). In all cases, the competent authority shall issue the document.
7. The preparation of any change to an existing aircraft maintenance licence shall be carried out by the competent authority. However, it may also be prepared by any maintenance organisation approved in accordance with Annex II (Part- 145), where the competent authority agrees to this and the preparation takes place in accordance with a procedure laid down in the maintenance organisation exposition referred to in point 145.A.70 of Annex II (Part-145). In all cases, the competent authority shall change the document.
8. The holder of the aircraft maintenance licence shall keep it in good condition and shall ensure that no unauthorised entries are made. Failure to comply with this rule may invalidate the license or lead to the holder not being permitted to hold any certification privilege. It may also result in prosecution under national law.
9. The aircraft maintenance licence issued in accordance with Annex III (Part-66) shall be recognised in all Member States and it is

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

not required to exchange the document when working in another Member State.

10. The Annex to EASA Form 26 is optional and may only be used to include national privileges, where such privileges are covered by national law outside the scope of Annex III (Part-66).
11. With regard to the aircraft type rating page of the aircraft maintenance licence, the competent authority may decide not to issue this page until the first aircraft type rating needs to be endorsed and may need to issue more than one aircraft type rating page depending on the number of type ratings to be listed.
12. Notwithstanding point 11, each page issued shall be in the format of this example and contain the specified information for that page.
13. The aircraft maintenance licence shall clearly indicate that the limitations are exclusions from the certification privileges. If there are no limitations applicable, the LIMITATIONS page shall state 'No limitations'.
14. Where a pre-printer format is used for issuing the aircraft maintenance licence, any category, subcategory or type rating box which does not contain a rating entry shall be marked to show that the rating is not held.;

(c) Form 26 is replaced by the following:

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

I.
EUROPEAN UNION (*)
[STATE]
[AUTHORITY NAME & LOGO]
II.
Part-66
AIRCRAFT MAINTENANCE
LICENCE
III.
Licence No [MEMBER STATE
CODE].66.[XXXX]

EASA FORM 26 Issue 5

IVa. Full name of holder:

IVb. Date and place of birth:

V. Address of holder:

VI. Nationality of holder:

VII. Signature of holder:

III. Licence No:

VIII. CONDITIONS:

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

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

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

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

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

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

III. Licence No:

IX. Part-66 CATEGORIES

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

X. Signature of issuing officer & date:

XI. Seal or stamp of issuing authority:

III. Licence No:

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

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

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

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

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EASA Form 26 Issue 5

(26) the following Appendixes VII and VIII are added:

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

Appendix VII

Basic knowledge requirements for category L aircraft maintenance licence

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

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

TABLE OF CONTENTS: Module Designation

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

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

12L ‘Radio Com/ELT/Transponder/Instruments’

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;	1

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

—	Heat definition.	
1L.3	<p>Electrics DC Circuits</p> <ul style="list-style-type: none"> — Ohm's law, Kirchoff's voltage and current laws; — Significance of the internal resistance of a supply; — Resistance/resistor; — Resistor colour code, values and tolerances, preferred values, wattage ratings; — Resistors in series and parallel. 	1
1L.4	<p>Aerodynamics/aerostatics International Standard Atmosphere (ISA), application to aerodynamics and aerostatics. Aerodynamics</p> <ul style="list-style-type: none"> — Airflow around a body; — Boundary layer, laminar and turbulent flow; — Thrust, weight, aerodynamic resultant; — Generation of lift and drag: angle of attack, polar curve, stall. <p>Aerostatics Effect on envelopes, wind effect, altitude and temperature effects.</p>	1
1L.5	<p>Workplace safety and environmental protection</p> <ul style="list-style-type: none"> — Safe working practices and precautions when working with electricity, gases (especially oxygen), oils and chemicals; — Labelling, storage and disposal of hazardous (to safety and environment) materials; — Remedial action in the event of a fire or another accident with one or more hazards, including knowledge of extinguishing agents. 	2

MODULE 2L — HUMAN FACTORS

		Level
2L.1	General	1

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

—	The need to take human factors into account;	
—	Incidents attributable to human factors/human error;	
—	Murphy's Law.	
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

MODULE 3L — AVIATION LEGISLATION

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

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

MODULE 4L — AIRFRAME WOODEN/METAL TUBE AND FABRIC

		Level
4L.1	<p>Airframe wooden/combination of metal tube and fabric</p> <ul style="list-style-type: none"> — 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	<p>Material</p> <ul style="list-style-type: none"> — 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	<p>Identifying damage</p> <ul style="list-style-type: none"> — Overstress of wood / metal-tubing and fabric structures; — Load transfers; — Fatigue strength and crack testing. 	3

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

4L.4	Performance of practical activities	2
—	Locking of pins, screws, castellated nuts, turnbuckles;	
—	Thimble splice;	
—	Nicopress and Talurit repairs;	
—	Repair of coverings;	
—	Repair of transparencies;	
—	Repair exercises (plywood, stringer, handrails, skins);	
—	Aircraft Rigging. Calculation of control surface mass balance and range of movement of the control surfaces, measurement of operating forces;	
—	Performance of 100-hours/annual inspections on a wood or combination of metal-tube and fabric airframe.	

MODULE 5L — AIRFRAME COMPOSITE

		Level
5L.1	Airframe fibre-reinforced plastic (FRP)	2
—	Basic principles of FRP construction;	
—	Resins (Epoxy, polyester, phenolic resins, vinyl ester resins);	
—	Reinforcement materials glass, aramide and carbon fibres, features;	
—	Fillers;	
—	Supporting cores (balsa, honeycombs, foamed plastics);	
—	Constructions, load transfers (solid FRP shell, sandwiches);	
—	Identification of damage during overstressing of components;	
—	Procedure for FRP projects (according to Maintenance Organisation Manual) including storage conditions for material.	
5L.2	Material	2

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

—	<p>Thermosetting plastics, thermoplastic polymers, catalysts;</p> <p>Understanding properties, machining technologies, detaching, bonding, welding;</p> <p>Resins for FRP: epoxy resins, polyester resins, vinyl ester resins, phenolic resins;</p> <p>Reinforcement materials;</p> <p>From elementary fibre to filaments (release agent, finish), weaving patterns;</p> <p>Properties of individual reinforcement materials (E-glass fibre, aramide fibre, carbon fibre);</p> <p>Problem with multiple-material systems, matrix;</p> <p>Adhesion/cohesion, various behaviours of fibre materials;</p> <p>Filling materials and pigments;</p> <p>Technical requirements for filling materials;</p> <p>Property change of the resin composition through the use of E-glass, micro balloon, aerosols, cotton, minerals, metal powder, organic substances;</p> <p>Paint assembly and repair technologies;</p> <p>Support materials;</p> <p>Honeycombs (paper, FRP, metal), balsa wood, Divinycell (Contizell), development trends.</p>	
5L.3	<p>Assembly of Fibre-Reinforced Composite-Structure Airframes</p> <p>— Solid shell;</p> <p>— Sandwiches;</p> <p>— Assembly of aerofoils, fuselages, control surfaces.</p>	2
5L.4	<p>Identifying Damage</p> <p>— Behaviour of FRP components in the event of overstressing;</p> <p>— Identifying delaminations, loose bonds;</p> <p>— Bending vibration frequency in aerofoils;</p>	3

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

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

MODULE 6L — AIRFRAME METAL

		Level
6L.1	<p>Airframe metal</p> <p>— Metallic materials and semi-finished products, machining methods;</p> <p>— Fatigue strength and crack test;</p> <p>— Assembly of metal-construction components, riveted joints, adhesive joints;</p> <p>— Identification of damage to overstressed components, effects of corrosion;</p> <p>— Health and fire protection.</p>	2
6L.2	<p>Material</p> <p>— Steel and its alloys;</p> <p>— Light metals and their light alloys;</p> <p>— Rivet materials;</p> <p>— Plastics;</p> <p>— Colours and paints;</p> <p>— Metal adhesives;</p> <p>— Types of corrosion;</p> <p>— Covering materials and technologies (natural and synthetic).</p>	2
6L.3	<p>Identifying damage</p> <p>— Overstressed metal airframes, levelling, measurement of symmetry;</p> <p>— Load transfers;</p> <p>— Fatigue strength and crack test;</p> <p>— Identifying loose riveted joints.</p>	3
6L.4	<p>Assembly of metal- and composite-construction airframes</p> <p>— Skins;</p> <p>— Frames;</p> <p>— Stringers and longerons;</p> <p>— Frame construction;</p> <p>— Problems in multiple-material systems.</p>	2

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

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

MODULE 7L — AIRFRAME GENERAL

		Level
7L.1	Flight control system	3
—	Cockpit controls: controls in cockpit, colour markings, knob shapes;	
—	Flight controls surfaces, flaps, air brakes surfaces, controls, hinges, bearings, brackets, push-pull rods, bell cranks, horns, pulleys, cables, chains, tubes, rollers, tracks, jack screws, surfaces, movements,	

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

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

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

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

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

Interface between power plant and airframe.		
7L.10	Propeller — Inspection; — Replacement; — Balancing.	2
7L.11	Retraction system — Propeller position control; — Engine and/or propeller retraction system.	2
7L.12	Physical inspection procedures — 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

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;	2

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

—	Variable-pitch propellers, ground and in-flight adjustable propellers, mechanically, electrically and hydraulically;	
—	Balancing (static, dynamic);	
—	Noise problems.	
8L.4	Engine control devices	2
—	Mechanical control devices;	
—	Electrical control devices;	
—	Tank displays;	
—	Functions, characteristics, typical errors and error indications.	
8L.5	Hosepipes	2
—	Material and machining of fuel and oil hoses;	
—	Control of life limit.	
8L.6	Accessories	2
—	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.	
8L.7	Ignition system	2
—	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.	
8L.8	Induction and exhaust systems	2
—	Operation and assembly;	
—	Silencers and heater installations;	
—	Nacelles and cowlings;	
—	Inspection and test;	
—	CO emission test.	

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

<p>8L.9 Fuels and lubricants</p> <ul style="list-style-type: none"> — 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
<p>8L.10 Documentation</p> <ul style="list-style-type: none"> — 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
<p>8L.11 Illustrative material</p> <ul style="list-style-type: none"> — 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
<p>8L.12 Practical experience</p> <ul style="list-style-type: none"> — Work safety/accident prevention (handling of fuels and lubricants, start-up of engines); — Rigging-engine control rods and Bowden cables; — Setting of no-load speed; — Checking and setting the ignition point; — Operational test of magnetos; — Checking the ignition system; — Testing and cleaning of spark plugs; 	2

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

<ul style="list-style-type: none"> — 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. 	
<p>8L.13 Gas exchange in internal-combustion engines</p> <ul style="list-style-type: none"> — 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
<p>8L.14 Ignition, combustion and carburation</p> <ul style="list-style-type: none"> — Ignition; — Spark plugs; — Ignition system; — Combustion process; — Normal combustion; — Efficiency and medium pressure; — Engine knock and octane rating; — Combustion chamber shapes; — Fuel/air mix in the carburettor; — Carburettor principle, carburettor equation; — Simple carburettor; — Problems of the simple carburettor and their solutions; — Carburettor models; — Fuel/air mix during injection; — Mechanically controlled injection; — Electronically controlled injection; — Continuous injection; 	2

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

—	Carburettor-injection comparison.	
8L.15	Flight instruments in aircraft with injection engines	2
—	Special flight instruments (injection engine);	
—	Interpretation of indications in a static test;	
—	Interpretation of indications in flight at various flight levels.	
8L.16	Maintenance of aircraft with injection engines	2
—	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.	
8L.17	Workplace safety and safety provisions	2
	Work safety and safety provisions for work on injection systems.	
8L.18	Visual aids:	2
—	Carburettor;	
—	Components of injection system;	
—	Aircraft with injection engine;	
—	Tool for work on injection systems.	
8L.19	Electrical propulsion	2
—	Energy system, accumulators, installation;	
—	Electrical motor;	
—	Heat, noise and vibration checks;	
—	Testing windings;	
—	Electrical wiring and control systems;	
—	Pylon, extension and retraction systems;	
—	Motor/propeller brake systems;	
—	Motor ventilation systems;	

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

—	Practical experience of 100-hour/annual inspections.	
8L.20	<ul style="list-style-type: none"> — Jet propulsion — Engine installation; — Pylon, extension and retraction systems; — Fire protection; — Fuel systems including lubrication; — Engine starting systems, gas assist; — Engine damage assessment; — Engine servicing; — Engine removal / refit and test; — Practical experience of conditional / run time / annual inspections; — Conditional inspections. 	2
8L.21	Full authority digital engine control (FADEC)	2

MODULE 9L — BALLOON/AIRSHIP HOT AIR

		Level
9L.1	<ul style="list-style-type: none"> 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); 	3

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

—	Rigging and launch preparation (launch restraint);	
—	Launch.	
9L.2	Practical training Operating controls, maintenance and servicing jobs (according to flight manual).	3
9L.3	Envelope — Fabrics; — Seams; — Load tapes, rip stoppers; — Crown rings; — Parachute valve and fast-deflation systems; — Ripping panel; — Turning vent; — Diaphragms/catenaries (special shapes and airships); — Rollers, pulleys; — Control and shroud lines; — Knots; — Temperature indication label, temperature flag, envelope thermometer; — Flying wires; — Fittings, karabiners.	3
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

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

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

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);	3

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

—	Rigging and launch preparation;	
—	Launch.	
10L.2	Practical training	3
—	Operating controls;	
—	Maintenance and servicing jobs (according to AMM and AFM);	
—	Safety rules when using hydrogen as lifting gas.	
10L.3	Envelope	3
—	Fabrics;	
—	Poles and reinforcement of pole;	
—	Ripping panel and cord;	
—	Parachute and shroud lines;	
—	Valves and cords;	
—	Filler neck, Poeschel-ring and cords;	
—	Electrostatic discharge paths.	
10L.4	Valve	3
—	Springs;	
—	Gaskets;	
—	Screwed joints;	
—	Control lines;	
—	Electrostatic discharge paths.	
10L.5	Netting or rigging (without net)	3
—	Kinds of net and other lines;	
—	Mesh sizes and angles;	
—	Net ring;	
—	Knotting methods;	
—	Electrostatic discharge paths.	
10L.6	Load ring	3
10L.7	Basket (incl. alternative devices)	3
—	Kinds of baskets (incl. alternative devices);	
—	Strops and toggles;	
—	Ballast system (bags and supports);	
—	Electrostatic discharge paths.	
10L.8	Ripping cord and valve cords	3
10L.9	Mooring line and drag rope	3

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

10L.10	Minor repairs — Bonding; — Splicing hemp ropes.	3
10L.11	Equipment Instruments (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 11L — AIRSHIPS HOT AIR/GAS

	Level
11L.1	3
—	Basic principles and assembly of small airships
—	Envelope, ballonnets;
—	Valves, openings;
—	Gondola;
—	Propulsion;
—	Aircraft Flight Manuals (AFMs) and Aircraft Maintenance Manuals (AMMs);

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

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

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

- Fire extinguisher, fire blanket;
- Instruments (single or combined).

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

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

Appendix VIII

Basic examination standard for category L aircraft maintenance licence

- (a) The standardisation basis for examinations related to the Appendix VII basic knowledge requirements shall be as follows:
- (i) all examinations must be carried out using the multiple-choice question format as specified in point (ii). The incorrect alternatives must seem equally plausible to anyone ignorant of the subject. All of the alternatives should be clearly related to the question and of similar vocabulary, grammatical construction and length. In numerical questions, the incorrect answers should correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they must not be mere random numbers;
 - (ii) each multiple-choice question must have three alternative answers of which only one must be the correct answer and the candidate must be allowed a time per module which is based upon a nominal average of 75 seconds per question;
 - (iii) the pass mark for each module is 75 %;

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

- (iv) penalty marking (negative points for failed questions) is not to be used;
 - (v) the level of knowledge required in the questions must be proportionate to the level of technology of the aircraft category.
- (b) The number of questions per module shall be as follows:
- (i) module 1L ‘Basic knowledge’: 12 questions. Time allowed: 15 minutes;
 - (ii) module 2L ‘Human factors’: 8 questions. Time allowed: 10 minutes;
 - (iii) module 3L ‘Aviation legislation’: 24 questions. Time allowed: 30 minutes;
 - (iv) module 4L ‘Airframe wooden/metal tube and fabric’: 32 questions. Time allowed: 40 minutes;
 - (v) module 5L ‘Airframe composite’: 32 questions. Time allowed: 40 minutes;
 - (vi) module 6L ‘Airframe metal’: 32 questions. Time allowed: 40 minutes;
 - (vii) module 7L ‘Airframe general’: 64 questions. Time allowed: 80 minutes;
 - (viii) module 8L ‘Power plant’: 48 questions. Time allowed: 60 minutes;
 - (ix) module 9L ‘Balloon/Airship hot air’: 36 questions. Time allowed: 45 minutes;
 - (x) module 10L ‘Balloon/Airship gas (free/tethered)’: 40 questions. Time allowed: 50 minutes;
 - (xi) module 11L ‘Airships hot air/gas’: 36 questions. Time allowed: 45 minutes;
 - (xii) Module 12L ‘Radio Com/ELT/transponder/instruments’: 16 questions. Time allowed 20 minutes.

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ANNEX IV

Annex IV is amended as follows:

- (1) in point 147.A.145, point (a) is replaced by the following:
 - (a) The maintenance training organisation may carry out the following as permitted by and in accordance with the maintenance training organisation exposition:

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

- (i) basic training courses to the Annex III (Part-66) syllabus, or part thereof;
 - (ii) aircraft type/task training courses in accordance with Annex III (Part-66);
 - (iii) the examination of students who attended the basic or aircraft type training course at the maintenance training organisation;
 - (iv) the examination of students who did not attend the aircraft type training course at the maintenance training organisation;
 - (v) the examination of students who did not attend the basic training course at the maintenance training organisation, provided that:
 - (1) the examination is conducted at one of the locations identified in the approval certificate, or
 - (2) if performed at locations not identified in the approval certificate, as permitted by points (b) and (c), either
 - the examination is provided through a European Central Question Bank (ECQB), or
 - in the absence of an ECQB, the competent authority selects the questions for the examination;
 - (vi) the issue of certificates in accordance with Appendix III following successful completion of the approved basic or aircraft type training courses and examinations specified in points (a)(i), (a)(ii), (a)(iii), (a)(iv) and (a)(v), as applicable.;
- (2) Appendixes I and II are replaced by the following:

Appendix I

Basic training course duration

The minimum duration of a complete basic training course shall be as follows:

Basic Course	Duration (in hours)	Theoretical Training Ratio (in %)
A1	800	30–35
A2	650	30–35
A3	800	30–35

a This number of hours shall be increased as follows, depending on the additional system ratings selected:

System Rating	Duration (in hours)	Theoretical Training Ratio (in %)
COM/NAV	90	50–60
INSTRUMENTS	55	
AUTOFLIGHT	80	
SURVEILLANCE	40	
AIRFRAME SYSTEMS	100	

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

A4	800	30–35
B1.1	2 400	50–60
B1.2	2 000	50–60
B1.3	2 400	50–60
B1.4	2 400	50–60
B2	2 400	50–60
B2L	1 500 ^a	50–60
B3	1 000	50–60

a This number of hours shall be increased as follows, depending on the additional system ratings selected:

System Rating	Duration (in hours)	Theoretical Training Ratio (in %)
COM/NAV	90	50–60
INSTRUMENTS	55	
AUTOFLIGHT	80	
SURVEILLANCE	40	
AIRFRAME SYSTEMS	100	

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

Appendix II

Maintenance Training Organisation Approval referred to in Annex IV (Part-147) — EASA Form 11

[MEMBER STATE (*)]

A Member of the European Union (**)

MAINTENANCE TRAINING AND EXAMINATION ORGANISATION APPROVAL CERTIFICATE

Reference: [MEMBER STATE CODE (*)].147.[XXXX]

Pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council and to Commission Regulation (EU) No 1321/2014, for the time being in force and subject to the conditions specified below, the [COMPETENT AUTHORITY OF THE MEMBER STATE (*)] hereby certifies:

[COMPANY NAME AND ADDRESS]

as a maintenance training organisation in compliance with Section A of Annex IV (Part-147) of Regulation (EU) No 1321/2014, approved to provide training and conduct examinations listed in the approval schedule attached and to issue related certificates of recognition to students using the above references.

CONDITIONS:

- 1. This approval is limited to what is specified in the scope of work section of the approved maintenance training organisation exposition as referred to in Section A of Annex IV (Part-147); and
- 2. this approval requires compliance with the procedures specified in the approved maintenance training organisation exposition; and
- 3. this approval is valid whilst the approved maintenance training organisation remains in compliance with Annex IV (Part-147) of Regulation (EU) No 1321/2014; and
- 4. subject to compliance with the foregoing conditions, this approval shall remain valid for an unlimited duration unless the approval has previously been surrendered, superseded, suspended or revoked.

Date of original issue:

Date of this revision:

Revision No:

Signed:

For the competent authority: [COMPETENT AUTHORITY OF THE MEMBER STATE (*)]

(*) or EASA if EASA is the competent authority
(**) Delete for non-EU Member States or EASA.

as...

ANNEX IV

Document Generated: 2024-02-08

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

MAINTENANCE TRAINING AND EXAMINATION ORGANISATION APPROVAL SCHEDULE

Reference: [MEMBER STATE CODE (*).147.[XXXX]

Organisation: [COMPANY NAME AND ADDRESS]

CLASS	LICENCE CATEGORY	LIMITATION	
BASIC (**)	B1 (**)	TB1.1 (**)	AEROPLANES TURBINE (**)
		TB1.2 (**)	AEROPLANES PISTON (**)
		TB1.3 (**)	HELICOPTERS TURBINE (**)
		TB1.4 (**)	HELICOPTERS PISTON (**)
	B2 (**)/(****)	TB2 (**)	AVIONICS (**)
	B2L (**)	TB2L (**)	AVIONICS (indicate system ratings) (**)
	B3 (**)	TB3 (**)	PISTON ENGINE NON-PRESSURISED AEROPLANES OF 2 000 KG MTOM AND BELOW (**)
	A (**)	TA.1 (**)	AEROPLANES TURBINE (**)
		TA.2 (**)	AEROPLANES PISTON (**)
		TA.3 (**)	HELICOPTERS TURBINE (**)
TA.4 (**)		HELICOPTERS PISTON (**)	
L (**) (Only examination)	TL (**)	QUOTE THE SPECIFIC LICENCE SUB-CATEGORY (**)	
TYPE/TASK (**)	C (**)	T4 (**)	[QUOTE AIRCRAFT TYPE] (****)
	B1 (**)	T1 (**)	[QUOTE AIRCRAFT TYPE] (****)
	B2 (**)	T2 (**)	[QUOTE AIRCRAFT TYPE] (****)
	A (**)	T3 (**)	[QUOTE AIRCRAFT TYPE] (****)

This approval schedule is limited to those trainings and examinations specified in the scope of work section of the approved maintenance training organisation exposition.

Maintenance training organisation exposition reference:

Date of original issue:

Date of last revision approved: Revision No:

Signed:

For the competent authority: [COMPETENT AUTHORITY OF THE MEMBER STATE (*)]

(*) or EASA if EASA is the competent authority.

(**) Delete as appropriate if the organisation is not approved.

(***) Complete with the appropriate rating and limitation.

(****) The approval for the Basic B2 course/examination includes approval for B2L course/examination for all system ratings.

Changes to legislation: There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142. (See end of Document for details)

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- (3) the EASA Form 149 Issue 2 contained in Appendix III is replaced by the following:

ANNEX V

Annex Va is amended as follows:

- (1) in the table of contents, the following point T.A.501 is inserted after the entry ‘Subpart E Maintenance Organisation’:

T.A.501 **Maintenance Organisation;**

- (2) in point T.A.201, point 3 is replaced by the following:

- (3) The continuing airworthiness management organisation referred to in point (2) shall ensure that the maintenance and release of the aircraft are performed by a maintenance organisation meeting the requirements of Subpart E of this Annex (Part-T). For this purpose, when the continuing airworthiness management organisation does not meet those requirements itself, it shall establish a contract with a maintenance organisation meeting those requirements.;

- (3) the following title is added to the provisions of Subpart E Maintenance Organisation:
T.A. 501 **Maintenance Organisation;**

- (4) Point T.A.716 is replaced by the following:

T.A.716 **Findings**

After receipt of notification of findings according to T.B.705, the continuing airworthiness management organisation shall define a corrective action plan and demonstrate corrective action to the satisfaction of the competent authority within a period agreed with this authority..

Changes to legislation: There are currently no known outstanding effects for
the Commission Regulation (EU) 2018/1142. (See end of Document for details)

- (1) [OJ L 79, 19.3.2008, p. 1.](#)
- (2) Commission Regulation (EU) No 1321/2014 of 26 November 2014 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks ([OJ L 362, 17.12.2014, p. 1.](#)).
- (3) Commission Regulation (EU) 2015/1536 of 16 September 2015 amending Regulation (EU) No 1321/2014 as regards alignment of rules for continuing airworthiness with Regulation (EC) No 216/2008, critical maintenance tasks and aircraft continuing airworthiness monitoring ([OJ L 241, 17.9.2015, p. 16.](#)).

Changes to legislation:

There are currently no known outstanding effects for the Commission Regulation (EU) 2018/1142.