

Continuing Airworthiness 1321/2014

Proposed Part 66 and Part 147 changes with respect to E propulsion requirements

The text of the amendment is arranged to show deleted text, new or amended text as shown below:

~~(a) Text to be deleted is shown struck through;~~

(b) New text is highlighted in grey;

Annex III (Part-66)

GENERAL

66.1 CAA

[...]

(b) The CAA shall be responsible for defining:

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

and

3. the appropriate licence(s) subcategory/categories that permit(s) its (their) holder to issue certificates of release to service after maintenance in respect of any aircraft type that is not covered by any licence subcategory of point 1 of point 66.A.3 and point 66.A.20 privileges.

SECTION A - TECHNICAL REQUIREMENTS

Subpart A - Aircraft Maintenance Licence

66.A.3 Licence categories and subcategories

1. 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 Rotorcraft Helicopters Turbine;
- A4 Rotorcraft Helicopters Piston.

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

- B1.1 Aeroplanes Turbine;
- B1.2 Aeroplanes Piston;
- B1.3 Rotorcraft Helicopters Turbine;
- B1.4 Rotorcraft Helicopters Piston.
- B1.E Aeroplanes/rotorcraft with an electrical powerplant.
- 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.

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

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

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

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

(e) Category B3 The B3 licence is applicable to piston-engine non-pressurised aeroplanes of 2000 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 rotorcraft helicopters.

2. The appropriate licence (sub)category(ies) for the aircraft maintenance licence for an aircraft type and related powerplant not covered in points (a), (b), (f) and (g) of point 1, shall be the one that the CAA consider(s) adequate among those in point 1. and which is established in the operational suitability data established in accordance with Assimilated Regulation (EU) No 748/2012, taking into consideration a report from the applicant for or holder of the type certificate that assesses the architecture and systems of the aircraft and the syllabus of the basic knowledge modules and knowledge levels relevant for each subcategory referred to in point 1.

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 CAA.~~

(1)

(i) Group 1 is composed of:

(A) an aeroplane certificated for a MTOM exceeding 5 700 kg, or certificated for a maximum passenger seating configuration of more than 19, or certificated for operation with a minimum crew of at least two pilots, or equipped with (one) turbojet engine(s) or more than one turboprop engine, or pressurised and with maximum certified operating altitude exceeding FL290 or with a powerplant not being piston/turbine/electrical;

(B) a rotorcraft certificated for a MTOM exceeding 3 175 kg, or for a maximum passenger seating configuration of more than nine, or for operation with a minimum crew of at least two pilots, or with multiple piston/turbine engines, or with a powerplant not being piston/turbine/electrical;

(C) gas airships other than ELA2;

(D) aircraft other than aeroplanes, rotorcraft, sailplanes, balloons and airships; and

(E) [reserved]

(F) aircraft requiring an aircraft type rating endorsement in respect of this Part, when defined as such by the CAA

(ii) The CAA may decide to classify into Group 2, Group 3 or Group 4 or Group E, as appropriate, an aircraft which meets the conditions set out in the first subparagraph point (i), if it considers that the lower complexity of the particular aircraft justifies so.

(2) Group 2: aircraft other than those in Group 1 belonging to the following subgroups:

(i) subgroup 2a:

- single-turboprop engine aeroplanes,
- those turbojet and multiple-turboprop aeroplanes classified by the CAA in this subgroup because of their lower complexity.

(ii) subgroup 2b:

- single-turbine engine rotorcraft/helicopters,

– those multiple-turbine engine rotorcraft/helicopters classified by the CAA in this subgroup because of their lower complexity.

(iii) subgroup 2c:

– single-piston-engine rotorcraft/helicopters;

– those multiple-piston-engine rotorcraft/helicopters classified by the CAA 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.

(5) Group E: aircraft other than those in Group 1 belonging to the following subgroups:

(i) subgroup E_A: aeroplanes with an electrical powerplant.

(ii) subgroup E_R: rotorcraft with an electrical powerplant.

GM 66.A.5 Aircraft groups

The following table summarises the applicability of categories/subcategories of Part-66 licences versus the groups/subgroups of aircraft:

Category/subcategory Groups	A, B1 and C	B2	B2L	B3	L				
					L1C and L1	L2C and L2	L3H and L3G	L4H and L4G	L5
1 — Complex motor-powered aircraft — Multi-engine helicopters — Aeroplanes above FL290 — Aircraft with fly-by-wire systems — Any other aircraft when defined by the CAA	X	X							
1 — Group 1 Gas airships other than ELA2		X							X
2 2a: Single turboprop aeroplanes 2b: Single turbine rotorcraft/helicopters 2c: Single piston rotorcraft/helicopters	X	X	X						
3	X	X	X						

Category/subcategory Groups	A, B1 and C	B2	B2L	B3	L				
					L1C and L1	L2C and L2	L3H and L3G	L4H and L4G	L5
— Piston engine aeroplanes									
3 — Piston engine aeroplanes (non- pressurised of 2 000 kg MTOM and below)	X	X	X	X					
3 — ELA1 piston engine aeroplanes	X	X	X	X		X			
4 — Sailplanes		X	X		X	X			
— Powered sailplanes		X	X			X			X
— Balloons		X	X						
— Airships not in Group 1		X	X				X	X	
5 Group E									
— E-A aeroplanes with electric powerplant	X	X	X	X		X			X
— E-R rotorcraft with electric powerplant	X	X	X						

66.A.20 Privileges

(a) The following privileges shall apply:

1. A category A aircraft maintenance licence permits the holder to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the certification authorisation referred to in point 145.A.35 of Annex II (Part-145). The certification privileges shall be restricted to work that the licence holder has personally performed in the maintenance organisation that issued the certification authorisation.

2. A category B1 aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B1 support staff following:

- maintenance performed on aircraft structure, powerplant and mechanical and electrical systems,
- work on avionic systems requiring only simple tests to prove their serviceability and not requiring troubleshooting.

Category B1 includes the corresponding A subcategory.

3. A category B2 aircraft maintenance licence shall permit the holder:

(i) to issue certificates of release to service and to act as B2 support staff for following:

- maintenance performed on avionic and electrical systems, and
- electrical and avionics tasks within powerplant and mechanical systems, requiring only simple tests to prove their serviceability; and

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

The category B2 licence does not include any A subcategory.

4. A category B2L aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B2L support staff for the following:

- maintenance performed on electrical systems;
- maintenance performed on avionics systems within the limits of the system ratings specifically endorsed on the licence, and
- when holding the 'airframe system' rating, performance of electrical and avionics tasks within power plant and mechanical systems, requiring

only simple tests to prove their serviceability.

5. A category B3 aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B3 support staff for the following:

- maintenance performed on aeroplane structure, power plant and mechanical and electrical systems; and
- work on avionics systems requiring only simple tests to prove their serviceability and not requiring troubleshooting.

6. A category L aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as L support staff for the following:

- maintenance performed on aircraft structure, power plant and mechanical and electrical systems;
- work on radio, Emergency Locator Transmitters (ELT) and transponder systems; and
- work on other avionics systems requiring simple tests to prove their serviceability.

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

Subcategory L2C includes subcategory L1C.

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

8. In addition to the privileges in points 1 to 7, in respect of aircraft mentioned in point 2. of point 66.A.3, an aircraft maintenance licence identified as adequate in the operational suitability data established in accordance with Assimilated Regulation (EU) No 748/2012, shall permit the holder of the licence to issue certificates of release to service and, when relevant, to act as support staff.

(b) [...]

GM 66.A.20(a) Privileges

1. The following definitions apply:

Electrical system means the aircraft electrical power supply source (other than the main powerplant in aircraft with an electrical powerplant), plus the distribution system to the different components contained in the aircraft and relevant connectors. Lighting systems are also included in this definition. When working on cables and connectors which are part of these electrical systems, the following typical practices are included in the privileges:

- Continuity, insulation and bonding techniques and testing;
- Crimping and testing of crimped joints;
- Connector pin removal and insertion;
- Wiring protection techniques.

Electrical powerplant means all elements of a powerplant system which are used to store, transform/convert, control and transmit electrical energy to the aircraft elements that provide thrust and/or lift to the aircraft, such as electrical batteries, fuel cell elements (including tanks, lines and other circuit elements for consumables), solar panels, electrical engines, cables and

connectors, mechanical attachments to the aircraft structure, related instrumentation, power output control system, etc. Hybrid powerplant systems that transform fossil-fuel energy into electrical energy used for trust and/or lift are not considered to be covered under electrical powerplants.

Avionics system means an aircraft system that transfers, processes, displays or stores analogue or digital data using data lines, data buses, coaxial cables, wireless or other data transmission medium, and includes the system's components and connectors.

[...]

AMC 66.A.20(b)(2) Privileges

The 6 months of maintenance experience in the preceding 2-year period should be understood as consisting of two elements, duration and nature of the experience. The minimum to meet the requirements for these elements may vary depending on the size and complexity of the aircraft and type of operation and maintenance.

[...]

2. Nature of the experience:

Depending on the category of the aircraft maintenance licence, the following activities are considered relevant for maintenance experience:

- Servicing;
- Inspection;
- Operational and functional testing;
- Trouble-shooting;
- Repairing;
- Modifying;
- Changing component;
- Supervising these activities;

- Releasing aircraft to service.

For category B1, B2, B2L, B3 and L, for every aircraft included in the authorisation the experience should be on that particular aircraft or on a similar aircraft within the same licence (sub)category. Two aircraft can be considered to be similar when they have similar technology, construction and comparable systems, which means equally equipped with the following (as applicable to the licence category):

- Propulsion systems (piston, turboprop, turbofan, turboshaft, jet-engine or push propellers, electrical powerplant); and
- Flight control systems (only mechanical controls, hydro-mechanically powered controls or electro-mechanically powered controls); and
- Avionic systems (analogue systems or digital systems); and
- Structure (manufactured of metal, composite or wood). For licences endorsed with (sub)group ratings:
 - In the case of a B1 licence endorsed with (sub)group ratings (either manufacturer sub- group or full (sub)group) as defined in 66.A.45, the holder should show experience on at least one aircraft type per (sub)group and per aircraft structure (metal, composite, wood).
 - In the case of a B2 or B2L licence endorsed with (sub)group ratings (either manufacturer subgroup or full (sub)group) as defined in 66.A.45, the holder should show experience on at least one aircraft type per (sub)group.
 - In the case of a B3 licence endorsed with the rating 'piston-engine non-pressurised aeroplanes of 2000 kg MTOM and below' as defined in 66.A.45, the holder should show experience on at least one aircraft type per aircraft structure (metal, metal-tubing with fabric, composite, wooden).

[...]

The experience should be documented in an individual log book or in any other recording system (which may be an automated one) containing the following data:

- Date;
- Aircraft type;
- Aircraft identification i.e. registration;
- ATA chapter (optional);
- Operation performed e.g. 100 FH check, MLG wheel change, engine oil check and complement, SB embodiment, trouble shooting, structural repair, STC embodiment, etc.;
- In the particular case of Part-145 organisations, the type of maintenance i.e. base, line;
- Type of activity i.e. perform, supervise, release;

- Subcategory used (A1, A2, A3, A4, B1.1, B1.2, B1.3, B1.4, B1.E, B2, B2L, B3, C or L1, L1C, L2, L2C, L3G, L3H, L4G, L4H, L5);
- Duration in days or partial-days.

6.A.25 Basic knowledge requirements

[...]

(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 CAA or as agreed by the CAA. The holder of an aircraft maintenance licence in subcategory B1.2 or category B3 is deemed to meet the basic knowledge requirements for a licence in subcategories L1C, L1, L2C and L2, except module 8L.19 at level 2 as defined in Appendix VII, when relevant. 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.

[...]

66.A.30 Basic experience requirements

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

[...]

2b. For category L:

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

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

The holder of an aircraft maintenance licence in category/subcategory B1.2 or B3 is deemed to meet the basic experience requirements for a licence in subcategories L1C, L1, L2C and L2, except practical experience in powered sailplanes or ELA1 aeroplanes with an electrical powerplant, when relevant.

The practical experience in powered sailplanes or ELA1 aeroplanes with an electrical powerplant will be considered as met when the holder of the licence can demonstrate 3 months of maintenance experience covering a representative cross section of maintenance activities for aircraft with an electrical powerplant.

[...]

AMC 66.A.30(a) Basic experience requirements

[...]

6. All maintenance experience gained in aircraft referred to in point 2 of 66.A.3 should account for a maximum of 50 % of the experience required per 66.A.30 in respect of the licence(s) subcategory/categories on which the aircraft type can be endorsed.

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.;

(v) for Group E aircraft, the appropriate aircraft type rating, manufacturer subgroup rating or full subgroup rating.

– For category B2L, the relevant aircraft ratings are the following:

(i) for Group 2 and Group E aircraft, the appropriate manufacturer subgroup rating or full subgroup rating;

(ii) for Group 3 aircraft, the full group rating;

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

— For category B3, the relevant rating is ‘piston-engine non-pressurised aeroplanes of 2000 kg MTOM and below’.

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

(i) for subcategory L1C, the rating ‘composite sailplanes’;

(ii) for subcategory L1, the rating ‘sailplanes’;

(iii) for subcategory L2C, the rating ‘composite powered sailplanes and composite ELA1 aeroplanes’;

(iv) for subcategory L2, the rating ‘powered sailplanes and ELA1 aeroplanes’;

(v) for subcategory L3H, the rating ‘hot-air balloons’;

(vi) for subcategory L3G, the rating ‘gas balloons’;

(vii) for subcategory L4H, the rating ‘hot-air airships’;

(viii) for subcategory L4G, the rating ‘ELA2 gas airships’;

(ix) for subcategory L5, the appropriate airship type rating.

— For category A, no rating is required, subject to compliance with the requirements of point 145.A.35 of Annex II (Part-145).

[...]

(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.

Aircraft referred to in point 2 of 66.A.3 may only be considered as the first aircraft to be endorsed in a licence within a given category/subcategory for the purpose of the previous paragraph, when the aircraft operational suitability data specifies that the aircraft is suitable for on-the-job training in the given licence category/subcategory. Otherwise, and notwithstanding the previous paragraph an adequate licence subcategory can still be endorsed with this aircraft type after compliance with all Appendix III requirements, but on-the-job training is still required for the first aircraft type to be endorsed which belongs to the licence subcategory in accordance with point 1 of point 66.A.3.

(d) By derogation from points (b) and (c), for Group 2, ~~and~~ Group 3 and Group E aircraft, aircraft type ratings may also be endorsed on a licence after completing the following steps:

- satisfactory completion of the relevant category B1, B2 or C aircraft type examination in accordance with Appendix III to this Annex (Part-66);
- in the case of B1 and B2 category, demonstration of practical experience in the aircraft type. In that case, the practical experience shall include a representative cross section of maintenance activities relevant to the licence category.

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

(e) For Group 2 and Group E aircraft:

For all L licence subcategories, other than L5:

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

(ii) unless the applicant provides evidence of appropriate experience, the ratings shall be subject to the following limitations, which shall be endorsed on the licence:

(1) for ratings 'sailplanes' and 'powered sailplanes and ELA1 aeroplanes':

- wooden-structure aircraft covered with fabric,

- aircraft with metal-tubing structure covered with fabric,
- metal-structure aircraft,
- composite-structure aircraft,

(2) for the rating 'gas balloons':

- other than ELA1 gas balloons; and

(3) if the applicant has only provided evidence of one-year experience in accordance with the derogation contained in point 66.A.30(a)(2b)(ii), the following limitation shall be endorsed on the licence:

'complex maintenance tasks provided for in Appendix VII to Annex I (Part-M), standard changes provided for in point 21.A.90B of Annex I (Part-21) to Assimilated Regulation (EU) No 748/2012 and standard repairs provided for in point 21.A.431B of Annex I (Part-21) to Assimilated 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 issue of a licence in subcategories subcategory L1 and, when fulfilling the missing basic knowledge and basic experience requirements referred to in points 66.A.25(b) and 66.A.30(a), subcategory L2, with the corresponding full ratings and with the same limitations as the B1.2/B3 licence held.

GM 66.A.45 Endorsement with aircraft ratings

The following table shows a summary of the aircraft rating requirements contained in 66.A.45, 66.A.50 and Appendix III to Part-66.

The table contains the following:

- The different aircraft groups.
- For each licence (sub)category, which ratings are possible (at the choice of the applicant):
 - Individual type ratings.
 - Full and/or manufacturer (sub)group ratings.
 - For each rating option, which are the qualification options.
 - For the B1.2 licence (Group 3 aircraft), the B3 licence (piston-engine non-pressurised aeroplanes of 2 000 kg MTOM and below) and the L licences, which are the possible limitations and ratings to be included in the licence if not sufficient experience can be demonstrated in those areas.

Note: OJT means 'On-the-Job Training' (Appendix III to Part-66, Section 6) and is only required for the first aircraft rating in the licence (sub)category.

Exemptions apply for the endorsement of aircraft referred to in point 2 of 66.A.3 and they are explained after the following table.

Aircraft rating requirements			
Aircraft	B1/B3/L licence	B2/B2L licence	C licence
<p><u>Group 1 aircraft, except airships</u></p> <p>–Complex motor-powered aircraft.</p> <p>–Multiple engine helicopters.</p> <p>–Aeroplanes certified above FL290.</p> <p>–Aircraft equipped with fly-by-wire.</p> <p>–Other aircraft when defined by the CAA.</p>	<p>(For B1)</p> <p>Individual TYPE RATING</p> <p>Type training:</p> <ul style="list-style-type: none"> - Theory + examination - Practical + assessment <p>PLUS</p> <p>OJT (for first aircraft in licence subcategory)</p>	<p>(For B2)</p> <p>Individual TYPE RATING</p> <p>Type training:</p> <ul style="list-style-type: none"> - Theory + examination - Practical + assessment <p>PLUS</p> <p>OJT (for first aircraft in licence subcategory)</p>	<p>Individual TYPE RATING</p> <p>Type training:</p> <ul style="list-style-type: none"> - Theory + examination
<u>Group 1 airships</u>	(For L5 licence)	(For B2)	
	Individual TYPE RATING	Individual TYPE RATING	
	<p>Type training:</p> <ul style="list-style-type: none"> - Theory + examination - Practical +assessment <p>PLUS</p> <p>OJT (for first aircraft in licence subcategory)</p>	<p>Type training:</p> <ul style="list-style-type: none"> - Theory + examination - Practical + assessment <p>PLUS</p>	Not applicable

Aircraft rating requirements			
Aircraft	B1/B3/L licence	B2/B2L licence	C licence
		OJT (for first aircraft in licence category)	
<p><u>Group 2 aircraft</u></p> <p>Subgroups:</p> <p>2a: single turboprop aeroplanes (*)</p> <p>2b: single turbine engine rotorcraft helicopters (*)</p> <p>2c: single piston engine rotorcraft helicopters (*)</p> <p>(*) Except those classified in Group 1.</p>	<p>(For B1.1, B1.3, B1.4)</p> <p>Individual TYPE RATING</p> <p>(type training + OJT) or (type examination + practical experience)</p> <p>Full SUBGROUP RATING</p> <p>(type training + OJT) or (type examination + practical experience) on at least 3 three aircraft representative of that subgroup</p> <p>Manufacturer SUBGROUP RATING</p> <p>(type training + OJT)</p> <p>or (type examination + practical experience) on at least 2 two aircraft representative of that manufacturer subgroup</p>	<p>(For B2)</p> <p>Individual TYPE RATING</p> <p>(type training + OJT) or (type examination + practical experience)</p> <p>(For B2 and B2L)</p> <p>Full SUBGROUP RATING</p> <p>based on demonstration of practical experience</p> <p>Manufacturer SUBGROUP RATING</p> <p>based on demonstration of practical experience</p>	<p>Individual TYPE RATING</p> <p>type training or type examination</p> <p>Full SUBGROUP RATING</p> <p>type training or type examination on at least 3 three aircraft representative of that subgroup</p> <p>Manufacturer SUBGROUP RATING</p> <p>type training or type examination on at least 2 two aircraft representative of that manufacturer subgroup</p>
<p><u>Group E aircraft subgroups:</u></p> <p>E_A: aeroplanes with an electrical powerplant (*)</p> <p>E_R: rotorcraft with an electrical powerplant (*)</p> <p>(*) Except those classified in Group 1.</p>	<p>(For B1.E)</p> <p>Individual TYPE RATING</p> <p>(type training + OJT) or (type examination + practical experience)</p> <p>Full SUBGROUP RATING</p> <p>(type training + OJT) or (type examination + practical experience) on at least three aircraft representative of that subgroup</p> <p>Manufacturer SUBGROUP RATING</p> <p>(type training + OJT) or (type examination + practical experience) on at least two</p>	<p>(For B2)</p> <p>Individual TYPE RATING</p> <p>(type training + OJT) or (type examination + practical experience) (For B2 and B2L)</p> <p>Full SUBGROUP RATING based on demonstration of practical experience</p> <p>Manufacturer SUBGROUP RATING</p>	<p>Individual TYPE RATING</p> <p>type training or type examination</p> <p>Full SUBGROUP RATING</p> <p>type training or type examination on at least three aircraft representative of that subgroup</p> <p>Manufacturer SUBGROUP RATING</p>

Aircraft rating requirements			
Aircraft	B1/B3/L licence	B2/B2L licence	C licence
	aircraft representative of that manufacturer subgroup	based on demonstration of practical experience	type training or type examination on at least two aircraft representative of that manufacturer subgroup
<u>Group 3 aircraft</u> Piston engine aeroplanes (except those classified in Group 1)	(For B1.2) Individual TYPE RATING (type training + OJT) or (type examination + practical experience) Full GROUP 3 RATING based on demonstration of practical experience Limitations: <ul style="list-style-type: none"> - Pressurized aeroplanes - Metal aeroplanes - Composite aeroplanes - Wooden aeroplanes - Metal tubing & fabric Aeroplanes 	(For B2) Individual TYPE RATING (type training + OJT) or (type examination + practical experience) (For B2 and B2L) Full GROUP 3 RATING based on demonstration of appropriate experience	Individual TYPE RATING type training or type examination Full GROUP 3 RATING based on demonstration of practical experience
<u>Piston-engine non-pressurised aeroplanes of 2 000 kg MTOM and below</u>	(For B3) FULL RATING "Piston-engine non-pressurised aeroplanes of 2 000 kg MTOM and below" based on demonstration of practical experience Limitations: <ul style="list-style-type: none"> - Metal aeroplanes - Composite aeroplanes - Wooden aeroplanes - Metal tubing & fabric aeroplanes 	This rating cannot be endorsed on a B2/B2L licence. These aircraft are already covered by the endorsement of ratings for Group 3 aircraft (see box above)	This rating cannot be endorsed on a C licence. These aircraft are already covered by the endorsement of ratings for Group 3 aircraft (see box above)

Aircraft rating requirements			
Aircraft	B1/B3/L licence	B2/B2L licence	C licence
<p><u>Group 4 aircraft:</u></p> <p>Sailplanes, powered sailplanes, balloons and airships other than those in Group 1</p>	<p>(For all L subcategories, except L5)</p> <ul style="list-style-type: none"> - For L1C: 'composite sailplanes' rating, - For L1: 'sailplanes' rating, - For L2C: 'composite powered sailplanes and composite ELA1 aeroplanes' rating, - For L2: 'powered sailplanes and ELA1 aeroplanes' rating, - For L3H: 'hot-air balloons' rating, - For L3G: 'gas balloons' rating, - For L4H: 'hot-air airships' rating, - For L4G: 'ELA2 gas airships' rating, <p>all based on demonstration of practical experience Limitations: see 66.A.45(h)</p>	<p>(For B2 and B2L)</p> <p>Full GROUP 4 RATING</p> <p>based on demonstration of practical experience</p>	<p>Not applicable</p>

Type endorsement of aircraft referred to in point 2 of 66.A.3 in a given licence subcategory B1.x or B2 does not require on-the-job training if the licence subcategory has already been endorsed with an aircraft type not being an aircraft of point 2 of 66.A.3.

If the licence subcategory has not yet been endorsed with such aircraft, the on-the-job training for the aircraft referred to in point 2 of 66.A.3 which is being endorsed on the adequate licence subcategory, may or may not count for the purpose mentioned in the first paragraph of point (c) of 66.A.45. This would be specified on the operational suitability data for the aircraft. For instance, a given small and simple aircraft referred to in point 2 of 66.A.3 might be suitable for endorsement both in the B1.1. and B1.2. licence subcategories, but its on-the-job training may only be considered suitable for

allowing further type endorsement without conducting new on-the-job training in the B1.2 licence subcategory.

AMC 66.A.45(d);(e)3;(f)1;(g)1;(h) Endorsement with aircraft ratings

[...]

2. In the case of endorsement of individual type ratings for Group 2, ~~and~~ Group 3 and Group E aircraft, for the second aircraft type of each manufacturer (sub)group the practical experience should be reduced to 30% of the tasks contained in Appendix II to AMC relevant to the licence category and to the applicable aircraft type. For subsequent aircraft types of each manufacturer (sub)group, this should be reduced to 20%.

[...]

AMC 66.A.45(e) Endorsement with aircraft ratings

1. For the granting of manufacturer subgroup ratings for Group 2 and Group E aircraft, for B1 and C licence holders, the sentence 'at least two aircraft types from the same manufacturer which combined are representative of the applicable manufacturer subgroup' means that the selected aircraft types should cover the technologies relevant to the manufacturer subgroup in the following areas:

- Flight control systems (mechanical controls/hydronechanically powered controls / electromechanically powered controls); and
- Avionic systems (analogue systems / digital systems); and
- Structure (manufactured of metal / composite / wood).

In cases where there are very different aircraft types within the same manufacturer subgroup, it may be necessary to cover more than two aircraft types to ensure adequate representation.

For this purpose it may be possible to use aircraft types from the same manufacturer classified in Group 1 as long as the selected aircraft belong to the same licence subcategory for which the rating will be endorsed.

2. For the granting of full subgroup ratings for Group 2 and Group E aircraft, for B1 and C licence holders, the sentence 'at least three aircraft types from different manufacturers which combined are representative of the applicable subgroup' means that the selected aircraft types should cover all the technologies relevant to the manufacturer subgroup in the following areas:

- Flight control systems (mechanical controls/hydronechanically powered controls / electromechanically powered controls); and
- Avionic systems (analogue systems / digital systems); and

— Structure (manufactured of metal / composite / wood).

In cases where there are very different aircraft types within the same subgroup, it may be necessary to cover more than three aircraft types to ensure adequate representation.

For this purpose it may be possible to use aircraft types from different manufacturers classified in Group 1 as long as the selected aircraft belong to the same licence subcategory for which the rating will be endorsed.

[...]

SECTION B - PROCEDURES FOR THE CAA

Subpart B - Issue of an Aircraft Maintenance Licence

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

66.B.110 Procedure for the change of an aircraft maintenance licence to include an additional basic category or subcategory

[...]

(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.:~~

(i) upon application, a fully rated licence in subcategory L1, with the same limitations as the B1.2/B3 licence held; and

(ii) upon application and presenting evidence of fulfilment of the missing basic knowledge and basic experience requirements referred to in 66.A.25(b) and 66.A.30(a), a fully rated licence in subcategory L2, with the same limitations as the B1.2/B3 licence held.

APPENDICES TO ANNEXE III (PART 66)

Appendix I — Basic Knowledge Requirements (except for category L licence)

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

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

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

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

Objectives:

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

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

Objectives:

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

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

Objectives:

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

using theoretical fundamentals and specific examples.

(c) The applicant should understand and be able to use mathematical formulae related to the subject.

(d) The applicant should be able to read, understand and prepare sketches, simple drawings and schematics describing the subject.

(e) The applicant should be able to apply his knowledge in a practical manner using manufacturer's instructions.

(f) The applicant should be able to interpret results from various sources and measurements and apply corrective action where appropriate.

2. Modularisation

Qualification on basic subjects for each aircraft maintenance licence category or subcategory shall be

in accordance with the following matrix, where applicable subjects are indicated by an 'X':

For (sub)categories A, B1(*), B1.E and B3:

(* – All B1 subcategories except subcategory B1.E

Subject module	A or B1 aeroplane with:		A or B1 helicopter with:		B1.E Aeroplane + rotorcraft	B3
	Turbine engine(s)	Piston engine(s)	Turbine engine(s)	Piston engine(s)	Electric Powerplant	Piston engine non-pressurised aeroplanes of 2000 kg MTOM and below
1	X	X	X	X	X	X
2	X	X	X	X	X	X
3	X	X	X	X	X	X
4	X	X	X	X	X	X
5	X	X	X	X	X	X
6	X	X	X	X	X	X
7A	X	X	X	X	X	
7B						X
8	X	X	X	X	X	X
9A	X	X	X	X	X	
9B						X
10	X	X	X	X	X	X
11A	X				X	
11B		X				
11C						X
12			X	X	X	
13						
14						
15	X		X			
16		X		X		X
17A	X	X			X	
17B			X	X		X
18					X	

[...]

Module 5 Digital techniques/Electronic Instrument Systems

MODULE 5 - DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS	LEVEL				
	A	B1.1 B1.3 B1.E	B1.2 B1.4	B2 B2L	B3
5.1 Electronic Instrument Systems Typical systems arrangements and cockpit layout of electronic instrument systems.	1	2	2	3	1
[...]					

[...]

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1.4
11.1 Theory of Flight 11.1.1 Aeroplane Aerodynamics and Flight Controls Operation and effect of: — roll control: ailerons and spoilers, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices, slots, slats, flaps, flaperons; Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels.	1	2
11.1.2 High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight; Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule; Factors affecting airflow in engine intakes of high speed aircraft; Effects of sweepback on critical Mach number.	1	2

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1-4
<p>11.2 Airframe Structures — General Concepts</p> <p>(a) Airworthiness requirements for structural strength;</p> <p>Structural classification, primary, secondary and tertiary;</p> <p>Fail safe, safe life, damage tolerance concepts;</p> <p>Zonal and station identification systems;</p> <p>Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue;</p> <p>Drains and ventilation provisions;</p> <p>System installation provisions;</p> <p>Lightning strike protection provision;</p> <p>Aircraft bonding.</p>	2	2
<p>(b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding;</p> <p>Methods of surface protection, such as chromating, anodising, painting;</p> <p>Surface cleaning;</p> <p>Airframe symmetry: methods of alignment and symmetry checks.</p>	1	2
<p>11.3 Airframe Structures — Aeroplanes</p> <p>11.3.1 Fuselage (ATA 52/53/56)</p> <p>Construction and pressurisation sealing;</p> <p>Wing, stabiliser, pylon and undercarriage attachments;</p> <p>Seat installation and cargo loading system;</p> <p>Doors and emergency exits: construction, mechanisms, operation and safety devices;</p> <p>Windows and windscreen construction and mechanisms.</p>	1	2
<p>11.3.2 Wings (ATA 57)</p> <p>Construction;</p> <p>Fuel storage;</p> <p>Landing gear, pylon, control surface and high lift/drag attachments.</p>	1	2
<p>11.3.3 Stabilisers (ATA 55)</p> <p>Construction;</p> <p>Control surface attachment.</p>	1	2
<p>11.3.4 Flight Control Surfaces (ATA 55/57)</p> <p>Construction and attachment;</p> <p>Balancing — mass and aerodynamic.</p>	1	2
<p>11.3.5 Nacelles/Pylons (ATA 54)</p> <p>Nacelles/Pylons:</p>	1	2

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1-4
— Construction, — Firewalls, — Engine mounts.		
11.4 Air Conditioning and Cabin Pressurisation (ATA 21) Air supply Sources of air supply including engine bleed, APU and ground cart.	1	2
11.4.2 Air Conditioning Air conditioning systems; Air cycle and vapour cycle machines; Distribution systems; Flow, temperature and humidity control system.	1	3
11.4.3 Pressurisation Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers.	1	3
11.4.4 Safety and warning devices Protection and warning devices.	1	3
11.5 Instruments/Avionic Systems 11.5.1 Instrument Systems (ATA 31) Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems; Glass cockpit; Other aircraft system indication.	1	2
11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (ATA 22), — Communications (ATA 23), — Navigation Systems (ATA 34).	1	1
11.6 Electrical Power (ATA 24) Batteries Installation and Operation; DC power generation; AC power generation; Emergency power generation; Voltage regulation; Power distribution;	1	3

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1-4
Inverters, transformers, rectifiers; Circuit protection; External/Ground power.		
11.7 Equipment and Furnishings (ATA 25) (a) Emergency equipment requirements; Seats, harnesses and belts.	2	2
(b) Cabin lay-out; Equipment lay-out; Cabin Furnishing installation; Cabin entertainment equipment; Galley installation; Cargo handling and retention equipment; Airstairs.	1	1
11.8 Fire Protection (ATA 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests;	1	3
(b) Portable fire extinguisher.	1	2
11.9 Flight Controls (ATA 27) Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic, electrical, fly-by-wire; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust lock systems; Balancing and rigging; Stall protection/warning system.	1	3
11.10 Fuel Systems (ATA 28) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling; Longitudinal balance fuel systems.	1	3
11.11 Hydraulic Power (ATA 29)	1	3

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1-4
System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Filters; Pressure Control; Power distribution; Indication and warning systems; Interface with other systems.		
11.12 Ice and Rain Protection (ATA 30) Ice formation, classification and detection; Anti-icing systems: electrical, hot air and chemical; De-icing systems: electrical, hot air, pneumatic and chemical; Rain repellent; Probe and drain heating; Wiper systems.	1	3
11.13 Landing Gear (ATA 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering; Air-ground sensing.	2	3
11.14 Lights (ATA 33) External: navigation, anti collision, landing, taxiing, ice; Internal: cabin, cockpit, cargo; Emergency.	2	3
11.15 Oxygen (ATA 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	1	3
11.16 Pneumatic/Vacuum (ATA 36) System lay-out;	1	3

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1.4
Sources: engine/APU (Auxiliary Power Unit), compressors, reservoirs, ground supply; Pressure and vacuum pumps; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.		
[...]		

[...]

Module 12 Rotorcraft Helicopter Aerodynamics Structures and Systems

MODULE 12. ROTORCRAFT HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A3	B1.3
	A4	B1.4
12.1 Theory of Flight — Rotary Wing Aerodynamics Terminology; Effects of gyroscopic precession; Torque reaction and directional control; Dissymmetry of lift, Blade tip stall; Translating tendency and its correction; Coriolis effect and compensation; Vortex ring state, power settling, overpitching; Auto-rotation; Ground effect.	1	2
[...]		

[...]

Module 12B. Rotorcraft: Gyrocopter specifics

Module 12B. Rotorcraft: Gyrocopter specifics	Level	
	A3	B1.3 B1.4 B1.E
	A4	
12B.1 Theory of flight — rotary wing aerodynamics Terminology; Blade lift and drag; Auto-rotation;	1	2

<p>Ground effect;</p> <p>Pre-rotate, take-off, flight, and landing characteristics;</p> <p>Gyroplane pitch stability, influence of centre of gravity, body aerodynamics;</p> <p>Thrust line;</p> <p>Horizontal tail;</p> <p>Gyroplane yaw stability;</p> <p>Taxi stability and roll-over risk;</p> <p>Power pushover, pilot-induced oscillations, low-g manoeuvres.</p>		
<p>12B.2 Flight control systems</p> <p>Rotor control systems;</p> <p>Yaw control systems;</p> <p>Main rotor head: design and operation features;</p> <p>Rotor blades: structure, attachments;</p> <p>Trim control.</p>	1	3
<p>12B.3 Blade tracking and vibration analysis</p> <p>Rotor alignment;</p> <p>Rotor tracking;</p> <p>Static and dynamic balancing;</p> <p>Vibration types, vibration reduction methods;</p> <p>Ground resonance.</p>	1	3
<p>12B.4 Transmission</p> <p>Gearboxes for pre-rotator and propeller;</p> <p>Pre-rotator systems;</p> <p>Clutches, free wheel units and rotor brake;</p> <p>Flexible couplings, drive shafts, bearings, vibration dampers and bearing hangers.</p>	1	3

[...]

Module 14 Propulsion

MODULE 14. PROPULSION	LEVEL B2B2L
<p>14.1 Turbine Engines</p> <p>(a) Constructional arrangement and operation of turbojet, turbofan, turboshaft and turbopropeller engines;</p>	1

MODULE 14. PROPULSION	LEVEL
	B2B2L
(b) Electronic Engine control and fuel metering systems (FADEC). [...]	2
14.3 Starting and Ignition Systems Operation of engine start systems and components; Ignition systems and components; Maintenance safety requirements.	2
14.4 Electrical powerplants - Working principle of electrical engines and generators; - Construction of rotating electric machines; - Power electronics; - Engine control system (control functions, speed control, torque control, position measurement, generator mode for energy recuperation, protection functions); - High voltage wiring, batteries, solar cells, fuel cells and auxiliary systems; - Practical elements: Safety procedures (high-pressure reservoirs, handling of chemicals, high voltage/currents); Scheduled inspection/check of the engine(s)/battery(ies)/fuel cells.	

[...]

Module 18 Electrical Powerplant

Module 18 Electrical Powerplant	Level
	B1.E
18.1 Electrical engines - General understanding of electromagnetics; - Working principle of electrical engines and generators; - Types and classification of rotating electric machines (DC brush, DC brushless, AC synchronous (reluctance, hysteresis, stepped, PM) and AC asynchronous (induction)); - Construction of rotating electric machines (outrunner, inrunner, rotor, stator, shaft, bearings, magnets, windings, electrical insulation, commutators, motor cooling, sensors, wiring); - Power electronics (switching devices, DC-DC converters, single-phase and	3

<p>multiplephases DC-AC inverters, single-phase and multiple-phases AC-DC rectifiers);</p> <p>- Engine control system (control functions, speed control, torque control, position measurement, generator mode for energy recuperation, protection functions).</p>	
<p>18.2 Batteries and accessories</p> <p>- Power-storage systems (common high-density battery, chemistry batteries, load cycles, degradation, effects of charging and overcharging, thermal runaway);</p> <p>- Battery management systems (general functions, battery balancing, monitoring);</p> <p>- Solar cells;</p> <p>- Wiring of electric power storage, power electronics and electric motor;</p> <p>- Instrumentation and cockpit indicators.</p>	3
<p>18.3 Fuel cells</p> <p>- General understanding and chemical principles: energy density, current generation, and generated heat;</p> <p>- Typical architectures, electrolytes, catalysts and fuels and chemical products;</p> <p>- Fuel cell auxiliary systems: tanks, lines, instruments;</p> <p>- Degradation, maintenance and fluids replenishment.</p>	3
<p>18.4 Practical elements</p> <p>- Safety procedures (high-pressure reservoirs, handling of chemicals, high voltage/currents);</p> <p>- Scheduled inspection/check of the engine(s)/battery(ies)/fuel cells;</p> <p>- Inspection/check after unscheduled events: lightning strike, component overheating, leakages;</p> <p>- Removal/installation of different elements of the powerplant.</p>	3
<p>18.5 Engine monitoring and ground operation.</p> <p>Procedures for starting and ground run up.</p> <p>Interpretation of engine power output and parameters</p>	3

Appendix II — Basic examination standard (except for category L licence)

[...]

2. Number of questions per module

[...]

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

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

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

2.12B. MODULE 12B ROTORCRAFT GYROCOPTER SPECIFICS

Category A3 and A4: 28 multi-choice and 0 essay questions. Time allowed 35 minutes.

Category B1.3 B1.4 B1.E: 28 multi-choice and 0 essay questions. Time allowed 35 minutes.

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.

Table: Category B2L

System rating	Number of multiple-choice questions	Time allowed (minutes)
Basic requirements (Submodules 13.1, 13.2, 13.5 and 13.9)	28	35
COM/NAV (Submodule 13.4(a))	24	30
INSTRUMENTS (Submodule 13.8)	20	25
AUTOFLIGHT	28	35

(Submodules 13.3(a) and 13.7)		
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 30 multiple-choice and 0 essay questions.
Time allowed 30 36 minutes.

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

[...]

2.18. MODULE 18 –ELECTRICAL POWERPLANT

Subcategory B1.E: 120 multi-choice and 0 essay questions. Time allowed 150 minutes.

Appendix III — Aircraft type training and examination standard

On the job training

[...]

3. Aircraft type training standard

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

3.1. Theoretical element

(a) Objective: On completion of a theoretical training course the student shall be able to demonstrate, to the levels identified in the Appendix III syllabus, the detailed theoretical knowledge of the aircraft's applicable systems, structure, operations, maintenance, repair, and troubleshooting according to approved maintenance data. The student shall be able to demonstrate the use of manuals and approved procedures, including the knowledge of relevant inspections and limitations.

(b) Level of training: Training levels are those levels defined in point 2 above. After the first type course for category C certifying staff all subsequent courses need only be to level 1. During a level 3 theoretical training, level 1 and 2 training material may be used to teach the full scope of the chapter if required. However, during the training the majority of the course material and training time shall be at the higher level.

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

Category	Hours ^(**)
Aeroplanes ^(*) with a maximum take-off mass above 30 000 kg:	
[...]	[...]
Aeroplanes ^(*) with a maximum take-off mass equal to or less than 30 000 kg and above 5 700 kg:	
[...]	[...]
Aeroplanes ^(*) with a maximum take-off mass of 5 700 kg and below ²³	
[...]	[...]
Helicopters rotorcraft ^(*) ²⁴	

B1.3	120
B1.4	100
B2	100
C	25
Aeroplanes/rotorcraft with an electrical powerplant	
B1.E ²⁵	150/120
C	adbCAA
Aircraft other than aeroplanes, rotorcraft, sailplanes, balloons and airships	
B1.1	adbCAA
B1.2	adbCAA
B1.3	adbCAA
B1.4	adbCAA
B1.E	adbCAA
C	adbCAA

²³ For non-pressurised piston-engine aeroplanes below 2 000 kg MTOM, the minimum duration can be reduced by 50 %.

²⁴ For helicopters/rotorcraft in Group 2 (as defined in point 66.A.5), the minimum duration can be reduced by 30 %.

²⁵ For aeroplanes/rotorcraft in Group E (as defined in point 66.A.5), the minimum duration can be reduced by 30 %.

(*) – aircraft with piston or turbine engine

(**) – For aeroplanes and rotorcraft with propulsion system other than turbine, piston engine or based on an electrical powerplant, the number of hours should be 'adbCAA'

In the table above, adbCAA means 'as determined by the CAA' in the operational suitability data established in accordance with Assimilated Regulation (EU) No 748/2012, taking into consideration a report from the applicant for, or holder of, the type certificate that contains an assessment of the required theoretical knowledge of the aircraft, considering the adequate licence category on which the aircraft type would be permitted for endorsement in accordance with 66.A.3.

For the purpose of the table above, a tuition hour means 60 minutes of teaching and exclude any breaks, examination, revision, preparation and aircraft visit. These hours apply only to theoretical courses for complete aircraft/engine combinations according to the type rating as defined by the CAA.

(d) Justification of course duration: Training courses carried out in a maintenance

training organisation approved in accordance with Annex IV (Part-147) and courses directly approved by the CAA shall justify their hour duration and the coverage of the full syllabus by a training needs analysis based on:

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

Where the training needs analysis shows that more hours are needed, course lengths shall be longer than the minimum specified in the table. Similarly, tuition hours of differences courses or other training course combinations (such as combined B1/B2 courses), and in cases of theoretical type training courses below the figures given in point 3.1(c) above, these shall be justified to the CAA by the training needs analysis as described above. In addition, the course must describe and justify the following:

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

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

(e) Content: As a minimum, the elements in the Syllabus below that are specific to the aircraft type shall be covered. Additional elements introduced due to type variations, technological changes, etc. shall also be included. The training syllabus shall be focused on mechanical and electrical aspects for B1 personnel, and electrical and avionic aspects for B2.

Level Chapters	Aeroplanes turbine		Aeroplanes piston		Helicopters Rotorcraft turbine		Helicopters Rotorcraft piston		Aeroplane / Rotorcraft electric		Avionics B2
	B1	C	B1	C	B1	C	B1	C	B1.E	C	
Introduction module:											
05 Time limits/maintenance checks	1	1	1	1	1	1	1	1	1	1	1
06 Dimensions/Areas (MTOM, etc.)	1	1	1	1	1	1	1	1	1	1	1
07 Lifting and Shoring	1	1	1	1	1	1	1	1	1	1	1
08 Levelling and weighing	1	1	1	1	1	1	1	1	1	1	1
09 Towing and taxiing	1	1	1	1	1	1	1	1	1	1	1
10 Parking/mooring Storing and Return to Service	1	1	1	1	1	1	1	1	1	1	1
11 Placards and Markings	1	1	1	1	1	1	1	1	1	1	1

Level Chapters	Aeroplanes turbine		Aeroplanes piston		Helicopters Rotorcraft turbine		Helicopters Rotorcraft piston		Aeroplane / Rotorcraft electric		Avioni cs
	B1	C	B1	C	B1	C	B1	C	B1.E	C	
Licence category.	B1	C	B1	C	B1	C	B1	C	B1.E	C	B2
12 Servicing	1	1	1	1	1	1	1	1	1	1	1
20 Standard practices — only type particular	1	1	1	1	1	1	1	1	1	1	1
Helicopters Rotorcraft											
18 Vibration and Noise Analysis (Blade tracking)	—	—	—	—	3	1	3	1	-/3	-/1	—
60 Standard Practices Rotor	—	—	—	—	3	1	3	1	-/3	-/1	—
62 Rotors	—	—	—	—	3	1	3	1	-/3	-/1	1
62A Rotors — Monitoring and indicating	—	—	—	—	3	1	3	1	-/3	-/1	3
63 Rotor Drives	—	—	—	—	3	1	3	1	-/3	-/1	1
63A Rotor Drives — Monitoring and indicating	—	—	—	—	3	1	3	1	-/3	-/1	3
64 Tail Rotor	—	—	—	—	3	1	3	1	-/3	-/1	1
64A Tail rotor — Monitoring and indicating	—	—	—	—	3	1	3	1	-/3	-/1	3
Tail Rotor Drive	—	—	—	—	3	1	3	1	-/3	-/1	1
65A Tail Rotor Drive — Monitoring and indicating	—	—	—	—	3	1	3	1	-/3	-/1	3
66 Folding Blades/Pylon	—	—	—	—	3	1	3	1	-/3	-/1	—
67 Rotors Flight Control	—	—	—	—	3	1	3	1	-/3	-/1	—
53 Airframe Structure (Helicopters Rotorcraft)	—	—	—	—	3	1	3	1	-/3	-/1	—
25 Emergency Flotation Equipment	—	—	—	—	3	1	3	1	-/3	-/1	1
Specific gyrocopter systems					3	1	3	1	-/3	-/1	1
Airframe structures											
51 Standard practices and structures (damage classification, assessment and repair)	3	1	3	1	—	—	—	—	-/3	-/1	1
53 Fuselage	3	1	3	1	—	—	—	—	-/3	-/1	1
54 Nacelles/Pylons	3	1	3	1	—	—	—	—	-/3	-/1	1
55 Stabilisers	3	1	3	1	—	—	—	—	-/3	-/1	1
56 Windows	3	1	3	1	—	—	—	—	-/3	-/1	1
57 Wings	3	1	3	1	—	—	—	—	-/3	-/1	1
27A Flight Control Surfaces (All)	3	1	3	1	—	—	—	—	-/3	-/1	1
52 Doors	3	1	3	1	—	—	—	—	-/3	-/1	1
Zonal and Station Identification Systems.	1	1	1	1	1	1	1	1	1	1	1
Airframe systems:											
21 Air Conditioning	3	1	3	1	3	1	3	1	3	1	3
21A Air Supply	3	1	3	1	3	1	3	1	3	1	2
21B Pressurisation	3	1	3	1	3	1	3	1	3	1	3
21C Safety and Warning Devices	3	1	3	1	3	1	3	1	3	1	3
22 Autoflight	2	1	2	1	2	1	2	1	2	1	3
23 Communications	2	1	2	1	2	1	2	1	2	1	3
24 Electrical Power	3	1	3	1	3	1	3	1	3	1	3
25 Equipment and Furnishings	3	1	3	1	3	1	3	1	3	1	1

Level Chapters	Aeroplanes turbine		Aeroplanes piston		Helicopters Rotorcraft turbine		Helicopters Rotorcraft piston		Aeroplane / Rotorcraft electric		Avionics cs
	B1	C	B1	C	B1	C	B1	C	B1.E	C	
Licence category.	B1	C	B1	C	B1	C	B1	C	B1.E	C	B2
25A Electronic Equipment including emergency equipment	1	1	1	1	1	1	1	1	1	1	3
26 Fire Protection	3	1	3	1	3	1	3	1	3	1	3
27 Flight Controls	3	1	3	1	3	1	3	1	3	1	2
27A Sys. Operation: Electrical/Fly-by-Wire	3	1	—	—	—	—	—	—	3/-	1/-	3
28 Fuel Systems	3	1	3	1	3	1	3	1	—	—	2
28A Fuel Systems — Monitoring and indicating	3	1	3	1	3	1	3	1	—	—	3
29 Hydraulic Power	3	1	3	1	3	1	3	1	3	1	2
29A Hydraulic Power — Monitoring and indicating	3	1	3	1	3	1	3	1	3	1	3
30 Ice and Rain Protection	3	1	3	1	3	1	3	1	3	1	3
31 Indicating/Recording Systems	3	1	3	1	3	1	3	1	3	1	3
31A Instrument Systems	3	1	3	1	3	1	3	1	3	1	3
Landing Gear	3	1	3	1	3	1	3	1	3	1	2
32A Landing Gear — Monitoring and indicating	3	1	3	1	3	1	3	1	3	1	3
33 Lights	3	1	3	1	3	1	3	1	3	1	3
34 Navigation	2	1	2	1	2	1	2	1	2	1	3
35 Oxygen	3	1	3	1	—	—	—	—	3/-	1/-	2
36 Pneumatic	3	1	3	1	3	1	3	1	3	1	2
36A Pneumatic — Monitoring and indicating	3	1	3	1	3	1	3	1	3	1	3
37 Vacuum	3	1	3	1	3	1	3	1	3	1	2
38 Water/Waste	3	1	3	1	—	—	—	—	3/-	1/-	2
41 Water Ballast	3	1	3	1	—	—	—	—	3/-	1/-	1
42 Integrated modular avionics	2	1	2	1	2	1	2	1	2	1	3
44 Cabin Systems	2	1	2	1	2	1	2	1	2	1	3
45 On-Board Maintenance System (or covered in 31)	3	1	3	1	3	1	—	—	3	1	3
46 Information Systems	2	1	2	1	2	1	2	1	2	1	3
50 Cargo and Accessory Compartments	3	1	3	1	3	1	3	1	3	1	1
Turbine Engine											
70 Standard Practices — Engines,	3	1	—	—	3	1	—	—	—	—	1
70A constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems).	3	1	—	—	3	1	—	—	—	—	1
70B Engine Performance	3	1	—	—	3	1	—	—	—	—	1
71 Powerplant	3	1	—	—	3	1	—	—	—	—	1

Level Chapters	Aeroplanes turbine		Aeroplanes piston		Helicopters Rotorcraft turbine		Helicopters Rotorcraft piston		Aeroplane / Rotorcraft electric		Avioni cs
	B1	C	B1	C	B1	C	B1	C	B1.E	C	
Licence category.	B1	C	B1	C	B1	C	B1	C	B1.E	C	B2
72 Engine Turbine/Turbo Prop/Ducted Fan/Unducted fan	3	1	—	—	3	1	—	—			1
73 Engine Fuel and Control	3	1	—	—	3	1	—	—			1
75 Air	3	1	—	—	3	1	—	—			1
76 Engine controls	3	1	—	—	3	1	—	—			1
78 Exhaust	3	1	—	—	3	1	—	—			1
79 Oil	3	1	—	—	3	1	—	—			1
80 Starting	3	1	—	—	3	1	—	—			1
82 Water Injections	3	1	—	—	3	1	—	—			1
83 Accessory Gear Boxes	3	1	—	—	3	1	—	—			1
84 Propulsion Augmentation	3	1	—	—	3	1	—	—			1
73A FADEC	3	1	—	—	3	1	—	—			3
74 Ignition	3	1	—	—	3	1	—	—			3
77 Engine Indicating Systems	3	1	—	—	3	1	—	—			3
49 Auxiliary Power Units (APUs)	3	1	—	—	—	—	—	—			2
Piston Engine											
70 Standard Practices — Engines	—	—	3	1	—	—	3	1			1
70A Constructional arrangement and operation (Installation, Carburettors, Fuel injection systems, Induction, Exhaust and Cooling Systems, Supercharging/Turbocharging, Lubrication Systems).	—	—	3	1	—	—	3	1			1
70B Engine Performance	—	—	3	1	—	—	3	1			1
71 Powerplant	—	—	3	1	—	—	3	1			1
73 Engine Fuel and Control	—	—	3	1	—	—	3	1			1
76 Engine Control	—	—	3	1	—	—	3	1			1
79 Oil	—	—	3	1	—	—	3	1			1
80 Starting	—	—	3	1	—	—	3	1			1
81 Turbines	—	—	3	1	—	—	3	1			1
82 Water Injections	—	—	3	1	—	—	3	1			1
83 Accessory Gear Boxes	—	—	3	1	—	—	3	1			1
84 Propulsion Augmentation	—	—	3	1	—	—	3	1			1
73A FADEC	—	—	3	1	—	—	3	1			3
74 Ignition	—	—	3	1	—	—	3	1			3
77 Engine Indication Systems	—	—	3	1	—	—	3	1			3
Electrical powerplant											
Electrical engines	—	—	—	—	—	—	—	—	3	1	
Fuel cell and related systems	—	—	—	—	—	—	—	—	3	1	
Batteries	—	—	—	—	—	—	—	—	3	1	

Level Chapters	Aeroplanes turbine		Aeroplanes piston		Helicopters Rotorcraft turbine		Helicopters Rotorcraft piston		Aeroplane / Rotorcraft electric		Avioni cs	
	B1	C	B1	C	B1	C	B1	C	B1.E	C	B2	
Auxiliary systems to the electrical powerplant	—	—	—	—	—	—	—	—	3	1		
Propellers												
60A Standard Practices — Propeller	3	1	3	1	—	—	—	—	3	1	1	
61 Propellers/Propulsion	3	1	3	1	—	—	—	—	3	1	1	
61A Propeller Construction	3	1	3	1	—	—	—	—	3	1	—	
61B Propeller Pitch Control	3	1	3	1	—	—	—	—	3	1	—	
61C Propeller Synchronising	3	1	3	1	—	—	—	—	3	1	1	
61D Propeller Electronic control	2	1	2	1	—	—	—	—	2	1	3	
61E Propeller Ice Protection	3	1	3	1	—	—	—	—	3	1	—	
61F Propeller Maintenance	3	1	3	1	—	—	—	—	3	1	1	
Special chapters for aeroplanes/rotorcraft with a powerplant (engine) other than piston/turbine/electric												
Identified specific chapters for the propulsion of the aeroplane or rotorcraft when the propulsion is based on a powerplant other than turbine, piston or electrical engines	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbCA A
Special chapters due to the aircraft not being covered by a B1/C (or L) licence												
Identified specific chapters for aircraft other than aeroplanes or rotorcraft (or covered by a category L licence)	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbC AA	adbCA A

In the table above, adbCAA means ‘as determined by the CAA’ in the operational suitability data established in accordance with Assimilated Regulation (EU) No 748/2012, taking into consideration a report from the applicant for, or holder of, the type certificate that contains an assessment of the required type of theoretical knowledge of the aircraft, considering the adequate licence category on which the aircraft type would be permitted for endorsement in accordance with 66.A.3. For these aircraft, CAA can also consider as ‘not required’ some of the chapters contained in the above table that would be otherwise required for a piston/turbine/electric aeroplane or rotorcraft.

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

3.2 Practical element

(a) Objective: The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the

type of aircraft, for example troubleshooting, repairs, adjustments, replacements, rigging and functional checks. It includes the awareness of the use of all technical literature and documentation for the aircraft, the use of specialist/special tooling and test equipment for performing removal and replacement of components and modules unique to type, including any on-wing maintenance activity.

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

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

Chapters	B1/B2	B1					B2				
	LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
Introduction module:											
5 Time limits/maintenance checks	X/X	—	—	—	—	—	—	—	—	—	—
6 Dimensions/Areas (MTOM, etc.)	X/X	—	—	—	—	—	—	—	—	—	—
7 Lifting and Shoring	X/X	—	—	—	—	—	—	—	—	—	—
8 Levelling and weighing	X/X	—	X	—	—	—	—	X	—	—	—
9 Towing and taxiing	X/X	—	X	—	—	—	—	X	—	—	—
10 Parking/mooring, Storing and Return to Service	X/X	—	X	—	—	—	—	X	—	—	—
11 Placards and Markings	X/X	—	—	—	—	—	—	—	—	—	—
12 Servicing	X/X	—	X	—	—	—	—	X	—	—	—
20 Standard practices — only type particular	X/X	—	X	—	—	—	—	X	—	—	—
Helicopters Rotorcraft:											
18 Vibration and Noise Analysis (Blade tracking)	X/—	—	—	—	—	X	—	—	—	—	—
60 Standard Practices Rotor — only type specific	X/X	—	X	—	—	—	—	X	—	—	—

Chapters	B1/B2	B1					B2				
	LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
62 Rotors	X/—	—	X	X	—	X	—	—	—	—	—
62A Rotors — Monitoring and indicating	X/X	X	X	X	X	X	—	—	X	—	X
63 Rotor Drives	X/—	X	—	—	—	X	—	—	—	—	—
63A Rotor Drives — Monitoring and indicating	X/X	X	—	X	X	X	—	—	X	—	X
64 Tail Rotor	X/—	—	X	—	—	X	—	—	—	—	—
64A Tail rotor - Monitoring and indicating	X/X	X	—	X	X	X	—	—	X	—	X
65 Tail Rotor Drive	X/—	X	—	—	—	X	—	—	—	—	—
65A Tail Rotor Drive — Monitoring and indicating	X/X	X	—	X	X	X	—	—	X	—	X
66 Folding Blades/Pylon	X/—	X	X	—	—	X	—	—	—	—	—
67 Rotors Flight Control	X/—	X	X	—	X	X	—	—	—	—	—
53 Airframe Structure (Helicopter Rotorcraft) Note: covered under Airframe structures											
25 Emergency Flotation Equipment	X/X	X	X	X	X	X	X	X	—	—	—
Specific gyrocopter systems	X/X	X	X	X	X	X	X	X	—	—	—
Airframe structures:											
51 Standard Practices and Structures (damage classification, assessment and repair)											
53 Fuselage	X/—	—	—	—	—	X	—	—	—	—	—
54 Nacelles/Pylons	X/—	—	—	—	—	—	—	—	—	—	—
55 Stabilisers	X/—	—	—	—	—	—	—	—	—	—	—
56 Windows	X/—	—	—	—	—	X	—	—	—	—	—
57 Wings	X/—	—	—	—	—	—	—	—	—	—	—
27A Flight Control Surfaces	X/—	—	—	—	—	X	—	—	—	—	—
52 Doors	X/X	X	X	—	—	—	—	X	—	—	—
Airframe systems:											
21 Air Conditioning	X/X	X	X	—	X	X	X	X	—	X	X
21A Air Supply	X/X	X	—	—	—	—	X	—	—	—	—
21B Pressurisation	X/X	X	—	—	X	X	X	—	—	X	X
21C Safety and warning Devices	X/X	—	X	—	—	—	—	X	—	—	—
22 Autoflight	X/X	—	—	—	X	—	X	X	X	X	X
23 Communications	X/X	—	X	—	X	—	X	X	X	X	X

Chapters	B1/B2	B1					B2				
	LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
24 Electrical Power	X/X	X	X	X	X	X	X	X	X	X	X
25 Equipment and Furnishings	X/X	X	X	X	—	—	X	X	X	—	—
25A Electronic Equipment including emergency equipment	X/X	X	X	X	—	—	X	X	X	—	—
26 Fire Protection	X/X	X	X	X	X	X	X	X	X	X	X
27 Flight Controls	X/X	X	X	X	X	X	X	—	—	—	—
27A Sys. Operation: Electrical/Fly-by-Wire	X/X	X	X	X	X	—	X	—	X	—	X
Fuel Systems	X/X	X	X	X	X	X	X	X	—	X	—
28A Fuel Systems — Monitoring and indicating	X/X	X	—	—	—	—	X	—	X	—	X
29 Hydraulic Power	X/X	X	X	X	X	X	X	X	—	X	—
29A Hydraulic Power — Monitoring and indicating	X/X	X	—	X	X	X	X	—	X	X	X
30 Ice and Rain Protection	X/X	X	X	—	X	X	X	X	—	X	X
31 Indicating/Recording Systems	X/X	X	X	X	X	X	X	X	X	X	X
31A Instrument Systems	X/X	X	X	X	X	X	X	X	X	X	X
32 Landing Gear	X/X	X	X	X	X	X	X	X	X	X	—
32A Landing Gear — Monitoring and indicating	X/X	X	—	X	X	X	X	—	X	X	X
33 Lights	X/X	X	X	—	X	—	X	X	X	X	—
34 Navigation	X/X	—	X	—	X	—	X	X	X	X	X
35 Oxygen	X/—	X	X	X	—	—	X	X	—	—	—
36 Pneumatic	X/—	X	—	X	X	X	X	—	X	X	X
36A Pneumatic — Monitoring and indicating	X/X	X	X	X	X	X	X	X	X	X	X
37 Vacuum	X/—	X	—	X	X	X	—	—	—	—	—
38 Water/Waste	X/—	X	X	—	—	—	X	X	—	—	—
41 Water Ballast	X/—	—	—	—	—	—	—	—	—	—	—
42 Integrated modular avionics	X/X	—	—	—	—	—	X	X	X	X	X
44 Cabin Systems	X/X	—	—	—	—	—	X	X	X	X	X
45 On-Board Maintenance System (or covered in 31)	X/X	X	X	X	X	X	X	X	X	X	X
46 Information Systems	X/X	—	—	—	—	—	X	—	X	X	X
50 Cargo and Accessory Compartments	X/X	—	X	—	—	—	—	—	—	—	—
Turbine/Piston Engine / Electrical propulsion Module:											

Chapters	B1/B2	B1					B2				
	LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
70 Standard Practices — Engines — only type particular	—	—	X	—	—	—	—	X	—	—	—
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems)	X/X	—	—	—	—	—	—	—	—	—	—
Turbine engines:											
70B Engine Performance	—	—	—	—	—	X	—	—	—	—	—
71 Power Plant	X/—	X	X	—	—	—	—	X	—	—	—
72 Engine Turbine/Turbo Prop/Ducted Fan/Unducted fan	X/—	—	—	—	—	—	—	—	—	—	—
73 Engine Fuel and Control	X/X	X	—	—	—	—	—	—	—	—	—
73A FADEC Systems	X/X	X	—	X	X	X	X	—	X	X	X
74 Ignition	X/X	X	—	—	—	—	X	—	—	—	—
75 Air	X/—	—	—	X	—	X	—	—	—	—	—
76 Engine Controls	X/—	X	—	—	—	X	—	—	—	—	—
77 Engine Indicating	X/X	X	—	—	X	X	X	—	—	X	X
78 Exhaust	X/—	X	—	—	X	—	—	—	—	—	—
79 Oil	X/—	—	X	X	—	—	—	—	—	—	—
80 Starting	X/—	X	—	—	X	X	—	—	—	—	—
82 Water Injection	X/—	X	—	—	—	—	—	—	—	—	—
83 Accessory Gearboxes	X/—	—	X	—	—	—	—	—	—	—	—
84 Propulsion Augmentation	X/—	X	—	—	—	—	—	—	—	—	—
Electrical powerplant:											
Electrical engines	X/X	X	X	X	X	X	X	—	—	x	—
Fuel cell and related systems	X/X	X	X	X	X	X	X	—	—	x	—
Batteries	X/X	X	X	X	X	X	X	—	—	x	—
Auxiliary systems to the electrical powerplant	X/X	X	X	X	X	X	X	—	—	x	—
Auxiliary Power Units (APUs):											
Auxiliary Power Units (APUs)	X/—	X	X	—	—	X	—	—	—	—	—
Piston Engines:											
70 Standard Practices — Engines — only type particular	—	—	X	—	—	—	—	X	—	—	—
70A Constructional arrangement and operation (Installation Inlet, Compressors,	X/X	—	—	—	—	—	—	—	—	—	—

Chapters	B1/B2	B1					B2				
	LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems)											
70B Engine Performance	—	—	—	—	—	X	—	—	—	—	—
71 Power Plant	X/—	X	X	—	—	—	—	X	—	—	—
73 Engine Fuel and Control	X/X	X	—	—	—	—	—	—	—	—	—
73A FADEC Systems	X/X	X	—	X	X	X	X	X	X	X	X
74 Ignition	X/X	X	—	—	—	—	X	—	—	—	—
76 Engine Controls	X/—	X	—	—	—	X	—	—	—	—	—
77 Engine Indicating	X/X	X	—	—	X	X	X	—	—	X	X
78 Exhaust	X/—	X	—	—	X	X	—	—	—	—	—
79 Oil	X/—	—	X	X	—	—	—	—	—	—	—
80 Starting	X/—	X	—	—	X	X	—	—	—	—	—
81 Turbines	X/—	X	X	X	—	X	—	—	—	—	—
82 Water Injection	X/—	X	—	—	—	—	—	—	—	—	—
83 Accessory Gearboxes	X/—	—	X	X	—	—	—	—	—	—	—
84 Propulsion Augmentation	X/—	X	—	—	—	—	—	—	—	—	—
Propellers:											
60A Standard Practices — Propeller	—	—	—	X	—	—	—	—	—	—	—
61 Propellers/Propulsion	X/X	X	X	—	X	X	—	—	—	—	—
61A Propeller Construction	X/X	—	X	—	—	—	—	—	—	—	—
61B Propeller Pitch Control	X/—	X	—	X	X	X	—	—	—	—	—
61C Propeller Synchronising	X/—	X	—	—	—	X	—	—	—	X	—
61D Propeller Electronic control	X/X	X	X	X	X	X	X	X	X	X	X
61E Propeller Ice Protection	X/—	X	—	X	X	X	—	—	—	—	—
61F Propeller Maintenance	X/X	X	X	X	X	X	X	X	X	X	X
Identified specific modules for the propulsion of the aeroplane or rotorcraft when the propulsion is based on other than turbine, piston or electrical engines	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A
Identified specific modules for aircraft other than aeroplanes or rotorcraft (or covered by a	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A	adbCA A

Chapters	B1/B2	B1					B2				
	LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
category L (licence)											

In the table above, adbCAA means ‘as determined by the CAA’ in the operational suitability data established in accordance with Assimilated Regulation (EU) No 748/2012, taking into consideration a report from the applicant for, or holder of, the type certificate that contains an assessment of the required practical training on the aircraft, considering the adequate licence category on which the aircraft type would be permitted for endorsement in accordance with 66.A.3. For these aircraft, the Agency can also exempt some of the chapters contained in the above table that would be otherwise required for an aeroplane or a rotorcraft.

[...]

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	B1.E	B2	B2L	B3
A1	—	6 months	6 months	6 months	2 years	6 months	2 years	1 year	1 year	2 years	1 year	6 months
A2	6 months	—	6 months	6 months	2 years	6 months	2 years	1 year	1 year	2 years	1 year	6 months
A3	6 months	6 months	—	6 months	2 years	1 year	2 years	6 months	6 months	2 years	1 year	1 year
A4	6 months	6 months	6 months	—	2 years	1 year	2 years	6 months	6 months	2 years	1 year	1 year
B1.1	None	6 months	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	6 months	2 years	1 year	None
B1.3	6 months	6 months	None	6 months	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	—	—	1 year
B2L	6 months	6 months	6 months	6 months	1 year	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	1 year	2 years	1 year	—

Appendix V - Application Form — CAA Form 19

1. This Appendix contains an example of the form used for applying for the aircraft maintenance licence referred to in Annex III (Part-66).
2. The CAA may modify the CAA Form 19 only to include additional information necessary to support the case where the national requirements permit or require the aircraft maintenance licence issued in accordance with Annex III (Part-66) to be used outside the requirements of this Regulation.

Editorial note: CAA Form 19 amended to replace helicopter with rotorcraft and add subcategory E.

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
Helicopters Rotorcraft Turbine					n/a	n/a	n/a
Helicopters Rotorcraft Piston					n/a	n/a	n/a
Aeroplanes/Rotorcraft electrical powerplant	n/a		n/a		n/a	n/a	n/a
Avionics	n/a	n/a			n/a	n/a	n/a
Complex motor powered aircraft	n/a	n/a			n/a	n/a	
Aircraft other than complex motor powered aircraft	n/a	n/a			n/a	n/a	
Sailplanes Powered sailplanes ELA1 aeroplanes balloons and airships	n/a	n/a			n/a		n/a
Piston engine non pressurised aeroplanes of 2000kg MTOM and below	n/a	n/a				n/a	n/a

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

[...]

Editorial note: CAA Form 26 amended to replace helicopter with rotorcraft and add subcategory E.

Editorial note: CAA Form 26 Section IX is amended as follows:

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 Rotorcraft Turbine				n/a	n/a	n/a	n/a
Helicopters Rotorcraft Piston				n/a	n/a	n/a	n/a
Aeroplanes / Rotorcraft electrical powerplant	n/a			n/a	n/a	n/a	n/a
Avionics	n/a	n/a			n/a	n/a	n/a
Complex motor powered aircraft	n/a	n/a			n/a	n/a	
Aircraft other than complex motor powered aircraft	n/a	n/a			n/a	n/a	
Sailplanes Powered sailplanes ELA1 aeroplanes balloons and airships	n/a	n/a			n/a		n/a
Piston engine non pressurised aeroplanes of 2000kg MTOM and below	n/a	n/a				n/a	n/a

Appendix VIII – Basic Examination standard for category L aircraft maintenance licence.

(a) The standardisation basis for examinations related to the Appendix VII basic knowledge requirements shall be as follows:

(i) all examinations must be carried out using the multiple-choice question format as specified in point (ii). The incorrect alternatives must seem equally plausible to anyone ignorant of the subject. All of the alternatives should be clearly related to the question and of similar vocabulary, grammatical construction and length. In numerical questions, the incorrect answers should correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they must not be mere random numbers;

(ii) each multiple-choice question must have three alternative answers of which only one must be the correct answer and the candidate must be allowed a time per module which is based upon a nominal average of 75 seconds per question;

(iii) the pass mark for each module is 75 %;

(iv) penalty marking (negative points for failed questions) is not to be used;

(v) the level of knowledge required in the questions must be proportionate to the level of technology of the aircraft category.

(vi) a failed module may not be retaken for at least 90 days from the date of the failed module examination, except in the case of an organisation recognised by the Authority, which conducts a course of training tailored to the failed subjects in the particular module when the failed module may be retaken after 30 days.

(vii) the time periods required by point 66.A.25 apply to each individual module examination, with the exception of those module examinations which were passed as part of another category licence and the licence has already been issued;

(viii) the maximum number of consecutive attempts for each module is three. A further set of three attempts is allowed with a 1-year waiting period between the sets.

[...]

ANNEX IV (PART-147)

SECTION A TECHNICAL REQUIREMENTS

AMC 147.A.100(i) Facility requirements

[...]

2. Except for the Parts and national aviation regulations, the remainder of the documentation should represent typical examples for both large and small aircraft and cover both aeroplanes and ~~helicopters~~ rotorcraft as appropriate. Avionic documentation should cover a representative range of available equipment. All documentation should be reviewed and updated on a regular basis.

GM 147.A.145(d) Privileges of the maintenance training organisation

[...]

3. The reason for allowing the subcontracting of training modules 1 to 6 and 8 to 10 only is ~~that~~, most of the related subjects can generally also be taught by training organisations not specialised in aircraft maintenance and the practical training element, as specified in 147.A.200, does not apply to them. On the contrary, ~~the other~~ training modules ~~7 and 11 to 17~~ are specific to aircraft maintenance and include the practical training element as specified in 147.A.200. The intent of the 'limited subcontracting' option as specified in 147.A.145 is to grant Part-147 approvals only to those organisations having themselves at least the capacity to teach on aircraft maintenance specific matters.

AMC 147.A.145(f) Privileges of the maintenance training organisation

When an organisation approved to provide basic knowledge training or type training is also approved to provide type examination in the cases where type training is not required, appropriate procedures in the MTOE should be developed and approved, including:

- The development and the conduct of the type examination;
- The qualification of the examiners and their currency.

In particular, emphasis should be put on when such an examination is not regularly conducted or when the examiners are not normally involved in aircraft or activities with technology corresponding to the aircraft type subject to examination. An example would be the case of an organisation providing basic knowledge training only for the B1.1 licence. This organisation should justify how they run type examinations for single-piston-engine rotorcraft/helicopters in the case of a B1.4 licence.

AMC 147.A.200(g) The approved basic training course

Typical conversion durations are given below:

(a) The approved basic training course to qualify for conversion from holding a Part-66 aircraft maintenance licence in subcategory A1 to subcategory B1.1 or B2 should not be less than 1600 hours and for conversion from holding a Part-66 aircraft maintenance licence in subcategory A1 to subcategory B1.1 combined with B2 should not be less than 2200 hours. The course should include between 60% and 70% knowledge training.

(b) The approved basic training course to qualify for conversion from holding a Part-66 aircraft maintenance licence in subcategory B1.1 to B2 or category B2 to B1.1 should not be less than 600 hours, and should include between 80% and 85% knowledge training.

(c) The approved basic training course to qualify for conversion from holding a Part-66 aircraft maintenance licence in subcategory B1.2 to subcategory B1.1 should not be less than 400 hours, and should include between 50% and 60% knowledge training.

(d) The approved basic training course to qualify for conversion from holding a Part-66 aircraft maintenance licence in one subcategory A to another subcategory A should not be less than 70 hours, and should include between 30% and 40% knowledge training.

(e) The approved basic training course to qualify for conversion from holding a Part-66 aircraft maintenance licence in any subcategory A to category B2L (with any system rating) should not be less than 800 hours and should include between 60 and 70 % of knowledge training.

(f) The approved basic training course to qualify for conversion from holding a Part-66 aircraft maintenance licence in subcategory A1, A3 or A4 to subcategory B1.E should not be less than 1 800 hours and for conversion from holding a Part-66 aircraft

maintenance licence in subcategory A1, A3 or A4 to subcategory B1.E combined with B2 should not be less than 2 400 hours. For conversions from A2 to B1.E or B1.E combined with B2, the minimum duration of the basic training course should be not less than 1 950 and 2 550 hours respectively. The course should include between 60 % and 70 % knowledge training.

(g) The approved basic training course to qualify for conversion from holding a Part-66 aircraft maintenance licence in subcategory B1.E to B2 should not be less than 600 hours or from a licence in category B2 to B1.E should not be less than 800 hours and should include between 80 % and 85 % knowledge training.

(h) The approved basic training course to qualify for conversion from holding a Part-66 aircraft maintenance licence in subcategory B1.1, B1.2, B1.3 or B1.4 to subcategory B1.E should not be less than 200, 600, 200 and 200 hours respectively, and should include between 50% and 60% knowledge training.

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
A4	800	30–35
B1.1	2400	50–60
B1.2	2000	50–60
B1.3	2400	50–60
B1.4	2400	50–60
B1.E	2600	50–60
B2	2400	50–60
B2L	1500	50–60
B3	1000	50–60