



PART-66 **CERTIFYING STAFF**

Q.C.M. Revision No.: 0

Date: 25 July 2012

Consolidated Version

including

Commission Regulation (EU) No 593/2012 of 5 July 2012

and

Decision No 2012/004/R of 19 April 2012

This document is meant purely as a documentation tool and Q.C.M. does not assume any liability for its contents.

Reason for Revision 0 of 25 July 2012:

This Revision 0 is the first issue of the QCM consolidated version of Commission Regulation (EC) No 2042/2003 of 20 November 2003 and ED Decision 2003/19/RM of 28 November 2003.

It includes all amendments up to and including

- Commission Regulation (EU) No 593/2012 of 5 July 2012
and
- Decision No 2012/004/R of 19 April 2012.

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PART-66 CERTIFYING STAFF

Consolidated Version

including

Commission Regulation (EU) No 593/2012 of 5 July 2012

and

Decision No 2012/004/R of 19 April 2012

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**FOLLOWING THE CONSOLIDATED VERSION OF
ANNEX III (PART-66)**

**Commission Regulation (EC) No 2042/2003 of 20
November 2003**

including

Commission Regulation (EC) No 707/2006 of 8 May 2006
Commission Regulation (EC) No 376/2007 of 30 March 2007
Commission Regulation (EC) No 1056/2008 of 27 October
2008
Commission Regulation (EU) No 127/2010 of 5 February
2010
Commission Regulation (EU) No 962/2010 of 26 October
2010
Commission Regulation (EU) No 1149/2011 of 21 October
2011
Commission Regulation (EU) No 593/2012 of 5 July 2012

Decision No 2003/219/RM of 28 November 2003

including:

Decision No 2006/11/R of 18-12-2006
Decision No 2007/002/R of 13 March 2007
Decision No 2009/007/R of 24 March 2009
Decision No 2010/002/R of 28 April 2010
Decision No 2010/006/R of 31 August 2010
Decision No 2011/011/R of 28 November 2011
Decision No 2012/004/R of 19 April 2012

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COMMISSION REGULATION (EC) No 2042/2003 of 20 November 2003

on the continuing airworthiness of aircraft, aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks

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Article 1 - Objective and scope

1. This Regulation establishes common technical requirements and administrative procedures for ensuring the continuing airworthiness of aircraft, including any component for installation thereto, which are:
 - (a) registered in a Member State; or
 - (b) registered in a third country and used by an operator for which a Member State ensures oversight of operations.
2. Paragraph 1 shall not apply to aircraft the regulatory safety oversight of which has been transferred to a third country and which are not used by a Community operator, or to aircraft referred to in Annex II to the basic Regulation.
3. The provisions of this Regulation related to commercial air transport are applicable to licensed air carriers as defined by Community law.

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Article 2 - Definitions

Within the scope of the basic Regulation, the following definitions shall apply:

- (a) 'aircraft' means any machine that can derive support in the atmosphere from the reactions of the air other than reactions of the air against the earth's surface;
- (b) 'certifying staff' means personnel responsible for the release of an aircraft or a component after maintenance;
- (c) 'component' means any engine, propeller, part or appliance;
- (d) 'continuing airworthiness' means all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation;
- (e) 'JAA' means 'Joint Aviation Authorities';
- (f) 'JAR' means 'Joint Aviation Requirements';
- (g) 'large aircraft' means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5 700 kg, or a multi-engined helicopter;
- (h) 'maintenance' means any one or combination of overhaul, repair, inspection, replacement, modification or defect rectification of an aircraft or component, with the exception of pre-flight inspection;
- (i) 'organisation' means a natural person, a legal person or part of a legal person. Such an organisation may be established at more than one location whether or not within the territory of the Member States;
- (j) 'pre-flight inspection' means the inspection carried out before flight to ensure that the aircraft is fit for the intended flight;
- (k) 'ELA1 aircraft' means the following manned European Light Aircraft:
 - (i) an aeroplane with a maximum take-off mass (MTOM) of 1 200 kg or less that is not classified as complex motor-powered aircraft;
 - (ii) a sailplane or powered sailplane of 1 200 kg MTOM or less;
 - (iii) a balloon with a maximum design lifting gas or hot air volume of not more than 3 400 m³ for hot air balloons, 1 050 m³ for gas balloons, 300 m³ for tethered gas balloons;
 - (iv) an airship designed for not more than four occupants and a maximum design lifting gas or hot air volume of not more than 3 400 m³ for hot air airships and 1 000 m³ for gas airships.

- (l) 'LSA aircraft' means a light sport aeroplane which has all of the following characteristics:
- (i) a Maximum Take-off Mass (MTOM) of not more than 600 kg;
 - (ii) a maximum stalling speed in the landing configuration (VSO) of not more than 45 knots Calibrated Airspeed (CAS) at the aircraft's maximum certificated take-off mass and most critical centre of gravity;
 - (iii) a maximum seating capacity of no more than two persons, including the pilot;
 - (iv) a single, non-turbine engine fitted with a propeller;
 - (v) a non-pressurised cabin;
- (m) 'principal place of business' means the head office or the registered office of the undertaking within which the principal financial functions and operational control of the activities referred to in this Regulation are exercised.

[Commission Regulation (EC) No 1056/2008 of 27 October 2008; Commission Regulation (EU) No 127/2010 of 5 February 2010; Commission Regulation (EU) No 593/2012 of 5 July 2012]

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Article 3 - Continuing airworthiness requirements

1. The continuing airworthiness of aircraft and components shall be ensured in accordance with the provisions of Annex I.
2. Organisations and personnel involved in the continuing airworthiness of aircraft and components, including maintenance, shall comply with the provisions of Annex I and where appropriate those specified in Articles 4 and 5.
3. By derogation from paragraph 1, the continuing airworthiness of aircraft holding a permit to fly shall be ensured on the basis of the specific continuing airworthiness arrangements as defined in the permit to fly issued in accordance with the Annex (Part 21) to Commission Regulation (EC) No 1702/2003.
4. For aircraft not used in commercial air transport, any airworthiness review certificate or equivalent document issued in accordance with the Member State requirements and valid on 28 September 2008 shall be valid until its expiration date or until 28 September 2009, whichever comes first. After the expiration of its validity, the competent authority may further re-issue or extend one time the airworthiness review certificate or equivalent document for one year, if allowed by the Member State requirements. Upon further expiration, the competent authority may further re-issue or extend one more time the airworthiness review certificate or equivalent document for one year, if allowed by the Member State requirements. No further re-issuance or extension is allowed. If the provisions of this point have been used, when transferring the registration of the aircraft within the EU, a new airworthiness review certificate shall be issued in accordance with M.A.904.

[Commission Regulation (EC) No 376/2007 of 30 March 2007; Commission Regulation (EC) No 1056/2008 of 27 October 2008]

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Article 4 - Maintenance organisation approvals

1. Organisations involved in the maintenance of large aircraft or of aircraft used for commercial air transport, and components intended for fitment thereto, shall be approved in accordance with the provisions of Annex II.
2. Maintenance approvals issued or recognised by a Member State in accordance with the JAA requirements and procedures and valid before the entry into force of this Regulation shall be deemed to have been issued in accordance with this Regulation. For this purpose, by derogation from the provisions of 145.B.50(2) under Annex II, level 2 findings associated with the differences between JAR 145 and Annex II may be closed within one year. Certificates of release to service and authorised release certificates issued by an organisation approved under JAA requirements during that one-year period shall be deemed to have been issued under this Regulation.
3. Personnel qualified to carry out and/or control a continued airworthiness non-destructive test of aircraft structures and/or components, on the basis of any standard recognised by a Member State prior to the entry into force of this Regulation as providing an equivalent level of qualification, may continue to carry out and/or control such tests.

4. Certificates of release to service and authorised release certificates issued before the date of entry into force of this Regulation by a maintenance organisation approved under the Member State requirements shall be deemed equivalent to those required under points M.A.801 and M.A.802 of Annex I (Part-M) respectively.

[Commission Regulation (EC) No 1056/2008 of 27 October 2008]

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Article 5 - Certifying staff

1. Certifying staff shall be qualified in accordance with the provisions of Annex III, except as provided for in points M.A.606(h), M.A.607(b), M.A.801(d) and M.A.803 of Annex I and in point 145.A.30(j) of Annex II (Part 145) and Appendix IV to Annex II (Part 145).
2. Any aircraft maintenance licence and if any, the technical limitations associated with that licence, issued or recognised by a Member State in accordance with the JAA requirements and procedures and valid at the time of entry into force of this Regulation, shall be deemed to have been issued in accordance with this Regulation.
3. Certifying staff holding a licence issued in accordance with Annex III (Part-66) in a given category/sub-category are deemed to have the privileges described in point 66.A.20(a) of this Annex corresponding to such a category/sub-category. The basic knowledge requirements corresponding to these new privileges shall be deemed as met for the purpose of extending such licence to a new category/sub-category.
4. Certifying staff holding a licence including aircraft which do not require an individual type rating may continue to exercise his/her privileges until the first renewal or change, where the licence shall be converted following the procedure described in point 66.B.125 of Annex III (Part-66) to the ratings defined in point 66.A.45 of this Annex.
5. Conversion reports and Examination credit reports complying with the requirements applicable before this Regulation applies shall be deemed to be in compliance with this Regulation.
6. Until such time as this Regulation specifies requirements for certifying staff:
 - (i) for aircraft other than aeroplanes and helicopters;
 - (ii) for components;

the requirements in force in the relevant Member State shall continue to apply, except for maintenance organisations located outside the European Union where the requirements shall be approved by the Agency.

[Commission Regulation (EC) No 1056/2008 of 27 October 2008; Commission Regulation (EU) No 1149/2011 of 21 October 2011]

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Article 6 - Training organisation requirements

1. Organisations involved in the training of personnel referred to in Article 5 shall be approved in accordance with Annex IV to be entitled:
 - (a) to conduct recognised basic training courses; and/or
 - (b) to conduct recognised type training courses; and
 - (c) to conduct examinations; and
 - (d) to issue training certificates.
2. Any maintenance training organisation approval issued or recognised by a Member State in accordance with the JAA requirements and procedures and valid at the time of entry into force of this Regulation shall be deemed to have been issued in accordance with this Regulation. For this purpose, by derogation from the provisions of 147.B.130(b) under Annex IV, level 2 findings associated with the differences between JAR 147 and Annex IV may be closed within one year.
3. Basic training courses complying with the requirements applicable before this Regulation applies may be started until 1 year after date by which this Regulation applies. Basic knowledge examinations conducted as part of these courses may comply with the requirements applicable before this Regulation applies.

4. Basic knowledge examinations complying with the requirements applicable before this Regulation applies and conducted by the competent authority or conducted by a maintenance training organisation approved in accordance with Annex IV (Part-147) while not being part of a basic training course, may be conducted until 1 year after the date by which this Regulation applies.
5. Type training courses and type examinations complying with the requirements applicable before this Regulation applies shall be started and finished not later than 1 year after the date by which this Regulation applies.

[Commission Regulation (EU) No 1149/2011 of 21 October 2011]

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Article 7 - Entry into force

1. This Regulation shall enter into force on the day following that of its publication in the Official Journal of the European Union.
2. By way of derogation from paragraph 1:
 - (a) the provisions of Annex I, except for points M.A.201(h)(2) and M.A.708(c), shall apply from 28 September 2005;
 - (b) point M.A.201(f) of Annex I shall apply to aircraft not involved in commercial air transport operated by third country carriers as from 28 September 2009.
3. By way of derogation from paragraph 1 and 2, Member States may elect not to apply:
 - (a) the provisions of Annex I to aircraft not involved in commercial air transport, until 28 September 2009;
 - (b) the provisions of Annex I(l) to aircraft involved in commercial air transport, until 28 September 2008;
 - (c) the following provisions of Annex II, until 28 September 2006:
 - 145.A.30(e), human factors elements,
 - 145.A.30(g) as applicable to large aircraft with a maximum take-off mass of more than 5 700 kg,
 - 145.A.30(h)(1) as applicable to aircraft with a maximum take-off mass of more than 5 700 kg,
 - 145.A.30(j)(1), Appendix IV,
 - 145.A.30(j)(2), Appendix IV;
 - (d) the following provisions of Annex II, until 28 September 2008:
 - 145.A.30(g) as applicable to aircraft with a maximum take-off mass of 5 700 kg or below,
 - 145.A.30(h)(1) as applicable to aircraft with a maximum take-off mass of 5 700 kg or below,
 - 145.A.30(h)(2);
 - (e) the provisions of Annex III, as applicable to aircraft with a maximum take-off mass above 5 700 kg until 28 September 2005;
 - (f) the provisions of Annex III, as applicable to aircraft with a maximum take-off mass of 5 700 kg or below until 28 September 2006;
 - (g) for aircraft not involved in commercial air transport other than large aircraft, the need to comply with Annex III (Part 66) in the following provisions, until 28 September 2011:
 - M.A.606(g) and M.A.801(b)2 of Annex I (Part-M),
 - 145.A.30(g) and (h) of Annex II (Part-145).
 - (h) for the maintenance of piston-engine non-pressurised aeroplanes of 2 000 kg MTOM and below not involved in commercial air transport:
 - (i) until 28 September 2012, 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 this Annex;
 - (ii) until 28 September 2014, the requirement to have certifying staff qualified in accordance with Annex III (Part-66) contained in the following provisions:

- M.A.606(g) and M.A.801(b)2 of Annex I (Part-M),
 - 145.A.30(g) and (h) of Annex II (Part-145);
- (i) for the maintenance of ELA1 aeroplanes not involved in commercial air transport, until 28 September 2015:
- (i) 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 this Annex;
 - (ii) the requirement to have certifying staff qualified in accordance with Annex III (Part- 66) contained in the following provisions:
 - M.A.606(g) and M.A.801(b)2 of Annex I (Part-M),
 - 145.A.30(g) and (h) of Annex II (Part- 145).
4. Member States may issue approvals with regard to Annex II and Annex IV of a limited duration until 28 September 2007.
5. When a Member State makes use of the provisions of paragraphs 3 or 4 it shall notify the Commission and the Agency.
6. The Agency shall make an evaluation of the implication of the provisions of Annex I to this Regulation with a view to submitting an opinion to the Commission, including possible amendments to it, before 28 March 2005.
7. By way of derogation from paragraph 1:
- (a) the provisions of point M.A.706(k) of Annex I (Part-M) shall apply as from 28 September 2010;
 - (b) the provisions of point 7.7 of Appendix I to Annex III (Part-66) shall apply as from 28 September 2010;
 - (c) maintenance organisations approved in accordance with Section A of subpart F of Annex I (Part-M) or Section A of Annex II (Part- 145) may continue to issue Authorised Release Certificates by using the EASA Form 1 original issue, as laid down in Appendix II to the Annex I (Part-M) as well as Appendix I to the Annex II (Part 145), until 28 September 2010;
 - (d) competent authorities may continue to issue certificates, previous issue, as laid down in Appendices III, V and VI to Annex I (Part-M), Appendix III to Annex II (Part-145), Appendix V to Annex III (Part-66) or Appendix II to Annex IV (Part-147) to Regulation (EC) No 2042/2003 in force prior to the entry into force of this regulation, until 28 September 2010;
8. For the purpose of time limits contained in points 66.A.25, 66.A.30 and Appendix III of Annex III (Part-66) related to basic knowledge examinations, basic experience, theoretical type training and examinations, practical training and assessment, type examinations and on the job training completed before this Regulation applies, the origin of time shall be the date by which this Regulation applies.
9. The Agency shall submit an opinion to the Commission including proposals for a simple and proportionate system for the licensing of certifying staff involved in the maintenance of ELA1 aeroplanes as well as aircraft other than aeroplanes and helicopters.

[Commission Regulation (EC) No 707/2006 of 8 May 2006; Commission Regulation (EC) No 1056/2008 of 27 October 2008; Commission Regulation (EU) No 127/2010 of 5 February 2010; Commission Regulation (EU) No 962/2010 of 26 October 2010; Commission Regulation (EU) No 1149/2011 of 21 October 2011]

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Article 8 - Agency measures

1. The Agency shall develop acceptable means of compliance (hereinafter called “AMC”) that competent authorities, organisations and personnel may use to demonstrate compliance with the provisions of the Annexes to this Regulation.
2. The AMC issued by the Agency shall neither introduce new requirements nor alleviate the requirements of the Annexes to this Regulation.
3. Without prejudice to Articles 54 and 55 of Regulation (EC) No 216/2008, when the acceptable means of compliance issued by the Agency are used, the related requirements of the Annexes to this Regulation shall be considered as met without further demonstration.

[Commission Regulation (EU) No 1149/2011 of 21 October 2011]

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

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ANNEX III (PART-66)

66.1 Competent authority

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<u>66.1(a)</u>	<i>AMC 66.A.1(a)</i>
<p>For the purpose of this Annex (Part-66), the competent authority shall be:</p> <ol style="list-style-type: none"> the authority designated by the Member State to whom a person first applies for the issuance of an aircraft maintenance licence; or the authority designated by another Member State, in case it would be different, subject to agreement with the authority referred to in point 1. In that case, the licence referred to in point 1 shall be revoked, all the records mentioned in point 66.B.20 shall be transferred and a new licence shall be issued on the basis of these records. 	<p>A competent authority may be a ministry, a national aviation authority, or any aviation body designated by the Member State and located within that Member State. A Member State may designate more than one competent authority to cover different areas of responsibility, as long as the designation decision contains a list of the competencies of each authority and there is only one competent authority responsible for each given area of responsibility.</p> <p>The purpose of 66.1(a)2 is to allow the possibility for a person who already holds a Part-66 licence issued by one Member State (i.e. Member State X) to replace it by a Part-66 licence issued by another Member State (i.e. Member State Y). This may be useful, for example, in cases where a person holding a licence from "Member State X" is developing his/her career in a maintenance organisation located in "Member State Y". In this case, this person may need to endorse new type ratings based on courses directly approved by the competent authority of "Member State Y" or may need to endorse new licence (sub)categories based on basic examinations performed by the competent authority of "Member State Y".</p>

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<u>66.1(b)</u>	
<p>The Agency shall be responsible for defining:</p> <ol style="list-style-type: none"> the list of aircraft types; and what airframe/engine combinations are included in each particular aircraft type rating. 	

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Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
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SECTION A TECHNICAL REQUIREMENTS

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Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
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SUBPART A AIRCRAFT MAINTENANCE LICENCE

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66.A.1 Scope

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66.A.1

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

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66.A.3 Licence categories

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GM 66.A.3

Individual aircraft maintenance licence holders need not be restricted to a single category. Provided that each qualification requirement is satisfied, any combination of categories may be granted.

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66.A.3(a)

Aircraft maintenance licences include the following categories:

- Category A
- Category B1
- Category B2
- Category B3
- Category C

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66.A.3(b)

Categories A and B1 are subdivided into subcategories relative to combinations of aeroplanes, helicopters, turbine and piston engines. These subcategories are:

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.3(b)</u>	
<ul style="list-style-type: none"> — A1 and B1.1 Aeroplanes Turbine — A2 and B1.2 Aeroplanes Piston — A3 and B1.3 Helicopters Turbine — A4 and B1.4 Helicopters Piston 	

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<u>66.A.3(c)</u>	
Category B3 is applicable to piston-engine non-pressurised aeroplanes of 2 000 kg MTOM and below.	

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66.A.5 Aircraft groups

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<u>66.A.5</u>	
<p>For the purpose of ratings on aircraft maintenance licences, aircraft shall be classified in the following groups:</p> <ol style="list-style-type: none"> 1. Group 1: complex motor-powered aircraft as well as multiple engine helicopters, aeroplanes with maximum certified operating altitude exceeding FL290, aircraft equipped with fly-by-wire systems and other aircraft requiring an aircraft type rating when defined so by the Agency. 2. Group 2: aircraft other than those in Group 1 belonging to the following subgroups: <ul style="list-style-type: none"> — sub-group 2a: single turbo-propeller engine aeroplanes — sub-group 2b: single turbine engine helicopters — sub-group 2c: single piston engine helicopters. 3. Group 3: piston engine aeroplanes other than those in Group 1. 	

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66.A.10 Application

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	AMC 66.A.10
	<ol style="list-style-type: none"> 1. Maintenance experience should be written up in a manner that the reader has a reasonable understanding of where, when and what maintenance constitutes the experience. A task-by-task account is not necessary but at the same time a bland statement "X years maintenance experience completed" is not acceptable. A logbook of maintenance experience is desirable and some competent authorities may require such a logbook to be kept. It is acceptable to cross-refer in the EASA Form 19 to other documents containing information on maintenance. 2. Applicants claiming the maximum reduction in 66.A.30(a) total experience based upon successful completion of 147.A.200 approved basic training should include the Part-147 certificate of recognition for approved basic training. 3. Applicants claiming reduction in 66.A.30(a) total experience based upon successful completion of technical training in an organisation or institute recognised by the competent authority as a competent organisation or institute should include the relevant certificate of successful completion of training.

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66.A.10(a)	
An application for an aircraft maintenance licence or change to such licence shall be made on an EASA Form 19 (see Appendix V) in a manner established by the competent authority and submitted thereto.	

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66.A.10(b)	
An application for the change to an aircraft maintenance licence shall be made to the competent authority of the Member State that issued the aircraft maintenance licence.	

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Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.10(c)</u>	
In addition to the documents required in points 66.A.10(a), 66.A.10(b) and 66.B.105, as appropriate, the applicant for additional basic categories or subcategories to an aircraft maintenance licence shall submit his/her current original aircraft maintenance licence to the competent authority together with the EASA Form 19.	

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<u>66.A.10(d)</u>	
Where the applicant for change of the basic categories qualifies for such change via the procedure referred to in point 66.B.100 in a Member State other than the Member State which issued the license, the application shall be sent to the competent authority referred to in point 66.1.	

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<u>66.A.10(e)</u>	
Where the applicant for change of the basic categories qualifies for such change via the procedure referred to in point 66.B.105 in a Member State other than the Member State which issued the license, the maintenance organisation approved in accordance with Annex II (Part-145) shall send the aircraft maintenance licence together with the EASA Form 19 to the competent authority referred to in point 66.1 for stamp and signature of the change or reissue of the licence, as appropriate.	

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<u>66.A.10(f)</u>	
Each application shall be supported by documentation to demonstrate compliance with the applicable theoretical knowledge, practical training and experience requirements at the time of application.	

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66.A.15 Eligibility

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66.A.15

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

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66.A.20 Privileges

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66.A.20(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

GM 66.A.20(a)

1. The following definitions apply:

Electrical system means the aircraft electrical power supply source, 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.

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. Examples of avionics systems include the following:

- Autoflight;
- Communication, Radar and Navigation;
- Instruments (see NOTE below);
- In-Flight Entertainment Systems;
- Integrated Modular Avionics (IMA);
- On-Board Maintenance Systems;
- Information Systems;

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.20(a)</u>	GM 66.A.20(a)
<p>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.</p> <p>The category B2 licence does not include any A subcategory.</p> <p>4. 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:</p> <ul style="list-style-type: none"> — maintenance performed on aeroplane structure, powerplant and mechanical and electrical systems, — work on avionic systems requiring only simple tests to prove their serviceability and not requiring troubleshooting. <p>5. A category C aircraft maintenance licence shall permit the holder to issue certificates of release to service following base maintenance on aircraft. The privileges apply to the aircraft in its entirety.</p>	<ul style="list-style-type: none"> • Fly-by-Wire Systems (related to ATA27 “Flight Controls”); • Fibre Optic Control Systems. <p>NOTE:</p> <p>Instruments are formally included in the privileges of the B2 licence holders. However, maintenance on electromechanical and pitot-static components may also be released by a B1 license holder.</p> <p>Simple test means a test described in approved maintenance data and meeting all the following criteria:</p> <ul style="list-style-type: none"> • The serviceability of the system can be verified using aircraft controls, switches, Built-in Test Equipment (BITE), Central Maintenance Computer (CMC) or external test equipment not involving special training. • The outcome of the test is a unique go–no go indication or parameter, which can be a single value or a value within an interval tolerance. No interpretation of the test result or interdependence of different values is allowed. • The test does not involve more than 10 actions as described in the approved maintenance data (not including those required to configure the aircraft prior to the test, i.e. jacking, flaps down, etc., or to return the aircraft to its initial configuration). Pushing a control, switch or button, and reading the corresponding outcome may be considered as a single step even if the maintenance data shows them separated. <p>Troubleshooting means the procedures and actions necessary to identify the root cause of a defect or malfunction using approved maintenance data. It may include the use of BITE or external test equipment.</p> <p>Line maintenance means any maintenance that is carried out before flight to ensure that the aircraft is fit for the intended flight. It may include:</p> <ul style="list-style-type: none"> • trouble shooting; • defect rectification; • component replacement with the use of external test equipment, if required. Component replacement may include components such as engines and propellers; • scheduled maintenance and/or checks including visual inspections that will detect obvious unsatisfactory conditions/discrepancies but do not require extensive in-depth inspection. It may also

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.20(a)</u>	GM 66.A.20(a)
	<p>include internal structure, systems and powerplant items which are visible through quick opening access panels/doors;</p> <ul style="list-style-type: none"> • minor repairs and modifications which do not require extensive disassembly and can be accomplished by simple means; • for temporary or occasional cases (Airworthiness Directives, hereinafter AD; service bulletins, hereinafter SB) the quality manager may accept base maintenance tasks to be performed by a line maintenance organisation provided all requirements are fulfilled. The Member State will prescribe the conditions under which these tasks may be performed. <p>Base Maintenance means any task falling outside the criteria are given above for <i>Line Maintenance</i>.</p> <p>NOTE:</p> <p>Aircraft maintained in accordance with “progressive” type programmes need to be individually assessed in relation to this paragraph. In principle, the decision to allow some “progressive” checks to be carried out is determined by the assessment that all tasks within the particular check can be carried out safely to the required standards at the designated line maintenance station.</p> <ol style="list-style-type: none"> 2. The category B3 licence does not include any A subcategory. Nevertheless, this does not prevent the B3 licence holder from releasing maintenance tasks typical of the A1.2 subcategory for piston-engine non-pressurised aeroplanes of 2 000 kg MTOM and below, within the limitations contained in the B3 licence. 3. The category C licence permits certification of scheduled base maintenance by the issue of a single certificate of release to service for the complete aircraft after the completion of all such maintenance. The basis for this certification is that the maintenance has been carried out by competent mechanics and category B1, B2 and B3 support staff, as appropriate, have signed for the maintenance tasks under their respective specialisation. The principal function of the category C certifying staff is to ensure that all required maintenance has been called up and signed off by the category B1, B2 and B3 support staff, as appropriate, before issue of the certificate of release to service. Only category C personnel who also hold category B1, B2 or B3 qualifications may perform both roles in base maintenance.

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Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.20(b)</u>	
The holder of an aircraft maintenance licence may not exercise its privileges unless:	

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<u>66.A.20(b)1</u>	
1. in compliance with the applicable requirements of Annex I (Part-M) and Annex II (Part-145); and	.

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<u>66.A.20(b)2</u>	<i>AMC 66.A.20(b)2</i>
2. in the preceding 2-year period he/she has, either had 6 months of maintenance experience in accordance with the privileges granted by the aircraft maintenance licence or, met the provision for the issue of the appropriate privileges; and	<p>The 6 months maintenance experience in 2 years 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.</p> <p>1. Duration:</p> <p>Within an approved maintenance organisation:</p> <ul style="list-style-type: none"> • 6 months working within the same organisation; or • 6 months split up into different blocks, working within the same or in different organisations. <p>The 6-month period can be replaced by 100 days of maintenance experience in accordance with the privileges, whether they have been performed within an approved organisation, or as independent certifying staff according to M.A.801(b)2, or as a combination thereof.</p> <p>When the licence holder maintains and releases aircraft in accordance with M.A.801(b)2, in certain circumstances this number of days may even be reduced by 50 % when agreed in advance by the competent authority. These circumstances consider the cases where the licence holder happens to be the owner of an aircraft and carries out maintenance on his own aircraft, or where a licence holder maintains an aircraft operated for low utilisation, that does not allow the licence holder to accumulate the required experience. This reduction should not be combined with the 20 % reduction permitted when carrying out technical support, or maintenance planning, continuing airworthiness management or engineering activities. To avoid a too long period without experience, the working days should be spread over the intended 6-month period.</p> <p>2. Nature of the experience:</p>

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.20(b)2</u>	AMC 66.A.20(b)2
	<p>Depending on the category of the aircraft maintenance licence, the following activities are considered relevant for maintenance experience:</p> <ul style="list-style-type: none"> • Servicing; • Inspection; • Operational and functional testing; • Troubleshooting; • Repairing; • Modifying; • Changing component; • Supervising these activities; • Releasing aircraft to service. <p>For category A licence holders, the experience should include exercising the privileges, by means of performing tasks related to the authorisation on at least one aircraft type for each licence subcategory. This means tasks as mentioned in AMC 145.A.30(g), including servicing, component changes and simple defect rectifications.</p> <p>For category B1, B2 and B3, for every aircraft type rating 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 as similar when they have similar technology, construction and comparable systems, which means equally equipped with the following (as applicable to the licence category):</p> <ul style="list-style-type: none"> • Propulsion systems (piston, turboprop, turbofan, turboshaft, jet-engine or push propellers); and • Flight control systems (only mechanical controls, hydromechanically powered controls or electromechanically powered controls); and • Avionic systems (analogue systems or digital systems); and • Structure (manufactured of metal, composite or wood). <p>For licences endorsed with (sub)group ratings:</p> <ul style="list-style-type: none"> • In the case of a B1 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 and per aircraft structure (metal, composite or wood). • In the case of a B2 licence endorsed with (sub)group

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.20(b)2</u>	AMC 66.A.20(b)2
	<p>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.</p> <ul style="list-style-type: none"> • In the case of a B3 licence endorsed with the rating <i>“piston-engine non-pressurised aeroplanes of 2 000 kg MTOM and below”</i> as defined in 66.A.45, the holder should show experience on at least one aircraft type per aircraft structure (metal, composite or wood). <p>For category C, the experience should cover at least one of the aircraft types endorsed on the licence.</p> <p>For a combination of categories, the experience should include some activities of the nature shown in paragraph 2 in each category.</p> <p>A maximum of 20 % of the experience duration required may be replaced by the following relevant activities on an aircraft type of similar technology, construction and with comparable systems:</p> <ul style="list-style-type: none"> • Aircraft maintenance related training as an instructor/assessor or as a student; • Maintenance technical support/engineering; • Maintenance management/planning. <p>The experience should be documented in an individual logbook or in any other recording system (which may be an automated one) containing the following data:</p> <ul style="list-style-type: none"> • Date; • Aircraft type; • Aircraft identification, i.e. registration; • ATA Chapter (optional); • Operation performed i.e. 100 FH check, MLG wheel change, engine oil check and complement, SB embodiment, troubleshooting, structural repair, STC embodiment...; • Type of maintenance, i.e. base, line; • Type of activity, i.e. perform, supervise, release; • Category used: A, B1, B2, B3 or C; • Duration in days or partial-days.

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Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
	<i>GM 66.A.20(b)2</i>
	The sentence “ <i>met the provision for the issue of the appropriate privileges</i> ” included in 66.A.20(b)2 means that during the previous 2 years the person has met all the requirements for the endorsement of the corresponding aircraft rating (for example, in the case of aircraft in Group 1, theoretical plus practical element plus, if applicable, on-the-job training). This supersedes the need for 6 months of experience for the first 2 years. However, the requirement of 6 months of experience in the preceding 2 years will need to be met after the second year.

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<u>66.A.20(b)3</u>	<i>AMC 66.A.20(b)3</i>
3. he/she has the adequate competence to certify maintenance on the corresponding aircraft; and	<p>The wording “<i>has the adequate competence to certify maintenance on the corresponding aircraft</i>” means that the licence holder and, if applicable, the organisation where he/she is contracted/employed, should ensure that he/she has acquired the appropriate knowledge, skills, attitude and experience to release the aircraft being maintained. This is essential because some systems and technology present in the particular aircraft being maintained may not have been covered by the training/examination/experience required to obtain the licence and ratings.</p> <p>This is typically the case, among others, in the following situations:</p> <ul style="list-style-type: none"> • Type ratings which have been endorsed on a licence in accordance with Appendix I to AMC to Part-66 “List of Type Ratings” after attending type training/on-the-job training which did not cover all the models/variants included in such rating. For example, a licence endorsed with the rating Airbus A318/A319/A320/A321 (CFM56) after attending type training/on-the-job training covering only the Airbus 320 (CFM56). • Type ratings which have been endorsed on a licence in accordance with Appendix I to AMC to Part-66 “List of Type Ratings” after a new variant has been added to the rating in Appendix I, without performing difference training. For example, a licence endorsed with the rating Boeing 737-600/700/800/900 for a person who already had the rating Boeing 737-600/700/800, without performing any difference training for the 737-900. • Work being carried out on a model/variant for which the technical design and maintenance techniques have significantly evolved from the original model used in the type training/on-the-job training. • Specific technology and options selected by each

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.20(b)3</u>	AMC 66.A.20(b)3
	<p>customer which may not have been covered by the type training/on-the-job training.</p> <ul style="list-style-type: none"> • Changes in the basic knowledge requirements of Appendix I to Part-66 not requiring reexamination of existing licence holders (grandfathered privileges). • The endorsement of group/subgroup ratings based on experience on a representative number of tasks/aircraft or based on type training/examination on a representative number of aircraft. • Persons meeting the requirements of 6 months of experience every 2 years only on certain similar aircraft types as allowed by AMC 66.A.20(b)2. • Persons holding a Part-66 licence with limitations, obtained through conversion of national qualifications (66.A.70), where such limitations are going to be lifted after performing the corresponding basic knowledge examinations. In this case, the type ratings endorsed in the licence may have been obtained in the national system without covering all the aircraft systems (because of the previous limitations) and there will be a need to assess and, if applicable, to train this person on the missing systems. <p>Additional information is provided in AMC 145.A.35(a).</p>

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<u>66.A.20(b)4</u>	GM 66.A.20(b)4
<p>4. he/she is able to read, write and communicate to an understandable level in the language(s) in which the technical documentation and procedures necessary to support the issue of the certificate of release to service are written.</p>	<p>1. Holders of a Part-66 aircraft maintenance licence may only exercise certification privileges when they have a general knowledge of the language used within the maintenance environment including knowledge of common aeronautical terms in the language. The level of knowledge should be such that the licence holder is able to:</p> <ul style="list-style-type: none"> • read and understand the instructions and technical manuals used for the performance of maintenance; • make written technical entries and any maintenance documentation entries, which can be understood by those with whom they are normally required to communicate; • read and understand the maintenance organisation procedures; • communicate at such a level as to prevent any misunderstanding when exercising certification privileges.

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.20(b)4</u>	<i>GM 66.A.20(b)4</i>
	2. In all cases, the level of understanding should be compatible with the level of certification privileges exercised.

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66.A.25 Basic knowledge requirements

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	<i>AMC 66.A.25</i>
	<ol style="list-style-type: none"> 1. For an applicant being a person qualified by holding an academic degree in an aeronautical, mechanical or electronic discipline from a recognised university or other higher educational institute the need for any examination depends upon the course taken in relation to Appendix I to Part-66. 2. Knowledge gained and examinations passed during previous experiences, for example, in military aviation and civilian apprenticeships may be credited where the competent authority is satisfied that such knowledge and examinations are equivalent to that required by Appendix I to Part-66.

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<u>66.A.25(a)</u>	<i>GM 66.A.25(a)</i>
An applicant for an aircraft maintenance licence, or the addition of a category or subcategory to such a licence, shall demonstrate by examination a level of knowledge in the appropriate subject modules in accordance with the Appendix I to Annex III (Part-66). The examination shall be conducted either by a training organisation appropriately approved in accordance with Annex IV (Part-147) or by the competent authority.	The levels of knowledge for each licence (sub)category are directly related to the complexity of the certifications related to the corresponding licence (sub)category, which means that category A should demonstrate a limited but adequate level of knowledge, whereas category B1, B2 and B3 should demonstrate a complete level of knowledge in the appropriate subject modules.

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<u>66.A.25(b)</u>	
The training courses and examinations shall be passed within 10 years prior to the application for an aircraft maintenance licence or the addition of a category or subcategory to such aircraft maintenance licence. Should this not be the case, examination credits may however be obtained in accordance with point (c).	

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<u>66.A.25(c)</u>	
<p>The applicant may apply to the competent authority for full or partial examination credit to the basic knowledge requirements for:</p> <ol style="list-style-type: none"> 1. basic knowledge examinations that do not meet the requirement described in point (b) above; and 2. any other technical qualification considered by the competent authority to be equivalent to the knowledge standard of Annex III (Part-66). <p>Credits shall be granted in accordance with Subpart E of Section B of this Annex (Part-66).</p>	

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<u>66.A.25(d)</u>	
<p>Credits expire 10 years after they were granted to the applicant by the competent authority. The applicant may apply for new credits after expiration.</p>	

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66.A.30 Basic experience requirements

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<u>66.A.30(a)</u>	<i>AMC 66.A.30(a)</i>
<p>An applicant for an aircraft maintenance licence shall have acquired:</p> <ol style="list-style-type: none"> 1. for category A, subcategories B1.2 and B1.4 and category B3: <ol style="list-style-type: none"> (i) 3 years of practical maintenance experience on operating aircraft, if the applicant has no previous relevant technical training; or (ii) 2 years of practical maintenance experience on operating aircraft and completion of training considered relevant by the competent authority as a skilled worker, in a technical trade; or (iii) 1 year of practical maintenance experience on operating aircraft and completion of a basic training course approved in accordance with Annex IV (Part-147); 2. for category B2 and subcategories B1.1 and B1.3: <ol style="list-style-type: none"> (i) 5 years of practical maintenance experience on operating aircraft if the applicant has no previous 	<ol style="list-style-type: none"> 1. For a category C applicant holding an academic degree the representative selection of tasks should include the observation of hangar maintenance, maintenance planning, quality assurance, record-keeping, approved spare parts control and engineering development. 2. While an applicant for a category C licence may be qualified by having 3 years experience as category B1 or B2 certifying staff only in line maintenance, it is however recommended that any applicant for a category C holding a B1 or B2 licence demonstrate at least 12 months experience as a B1 or B2 support staff. 3. A skilled worker is a person who has successfully completed a training acceptable to the competent authority and involving the manufacture, repair, overhaul or inspection of mechanical, electrical or electronic equipment. The training would include the use of tools and measuring devices. 4. Maintenance experience on operating aircraft: <ul style="list-style-type: none"> • Means the experience of being involved in

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<u>66.A.30(a)</u>	<i>AMC 66.A.30(a)</i>
<p>relevant technical training; or</p> <p>(ii) 3 years of practical maintenance experience on operating aircraft and completion of training considered relevant by the competent authority as a skilled worker, in a technical trade; or</p> <p>(iii) 2 years of practical maintenance experience on operating aircraft and completion of a basic training course approved in accordance with Annex IV (Part-147);</p> <p>3. for category C with respect to large aircraft:</p> <p>(i) 3 years of experience exercising category B1.1, B1.3 or B2 privileges on large aircraft or as support staff according to point 145.A.35, or, a combination of both; or</p> <p>(ii) 5 years of experience exercising category B1.2 or B1.4 privileges on large aircraft or as support staff according to point 145.A.35, or a combination of both;</p> <p>4. for category C with respect to other than large aircraft: 3 years of experience exercising category B1 or B2 privileges on other than large aircraft or as support staff according to point 145.A.35(a), or a combination of both;</p> <p>5. for category C obtained through the academic route: an applicant holding an academic degree in a technical discipline, from a university or other higher educational institution recognised by the competent authority, 3 years of experience working in a civil aircraft maintenance environment on a representative selection of tasks directly associated with aircraft maintenance including 6 months of observation of base maintenance tasks.</p>	<p>maintenance tasks on aircraft which are being operated by airlines, air taxi organisations, owners, etc.;</p> <ul style="list-style-type: none"> • Should cover a wide range of tasks in length, complexity and variety; • Aims at gaining sufficient experience in the real environment of maintenance as opposed to only the training school environment; • May be gained within different types of maintenance organisations (Part-145, M.A. Subpart F, FAR-145, etc.) or under the supervision of independent certifying staff; • May be combined with Part-147 approved training so that periods of training can be intermixed with periods of experience, similar to an apprenticeship.

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<u>66.A.30(b)</u>	
<p>An applicant for an extension to an aircraft maintenance licence shall have a minimum civil aircraft maintenance experience requirement appropriate to the additional category or subcategory of licence applied for as defined in Appendix IV to this Annex (Part-66).</p>	

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<u>66.A.30(c)</u>	
<p>The experience shall be practical and involve a representative cross section of maintenance tasks on</p>	

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<u>66.A.30(c)</u>	
aircraft.	

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<u>66.A.30(d)</u>	<i>AMC 66.A.30(d)</i>
At least 1 year of the required experience shall be recent maintenance experience on aircraft of the category/subcategory for which the initial aircraft maintenance licence is sought. For subsequent category/subcategory additions to an existing aircraft maintenance licence, the additional recent maintenance experience required may be less than 1 year, but shall be at least 3 months. The required experience shall be dependent upon the difference between the licence category/subcategory held and applied for. Such additional experience shall be typical of the new licence category/subcategory sought.	To be considered as recent experience, at least 50 % of the required 12 month recent experience should be gained within the 12-month period prior to the date of application for the aircraft maintenance licence. The remainder of the recent experience should have been gained within the 7-year period prior to application. It must be noted that the rest of the basic experience required by 66.A.30 must be obtained within the 10 years prior to the application as required by 66.A.30(f).

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<u>66.A.30(e)</u>	<i>AMC 66.A.30(e)</i>
Notwithstanding paragraph (a), aircraft maintenance experience gained outside a civil aircraft maintenance environment shall be accepted when such maintenance is equivalent to that required by this Annex (Part-66) as established by the competent authority. Additional experience of civil aircraft maintenance shall, however, be required to ensure adequate understanding of the civil aircraft maintenance environment.	<ol style="list-style-type: none"> 1. For category A the additional experience of civil aircraft maintenance should be a minimum of 6 months. For category B1, B2 or B3 the additional experience of civil aircraft maintenance should be a minimum of 12 months. 2. Aircraft maintenance experience gained outside a civil aircraft maintenance environment may include aircraft maintenance experience gained in armed forces, coast guards, police, etc., or in aircraft manufacturing.

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<u>66.A.30(f)</u>	
Experience shall have been acquired within the 10 years preceding the application for an aircraft maintenance licence or the addition of a category or subcategory to such a licence.	

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

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	GM 66.A.40
	The validity of the aircraft maintenance licence is not affected by recency of maintenance experience whereas the validity of the 66.A.20 privileges is affected by maintenance experience as specified in 66.A.20(a).

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<u>66.A.40(a)</u>	
The aircraft maintenance licence becomes invalid 5 years after its last issue or change, unless the holder submits his/her aircraft maintenance licence to the competent authority that issued it, in order to verify that the information contained in the licence is the same as that contained in the competent authority records, pursuant to point 66.B.120.	

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<u>66.A.40(b)</u>	
The holder of an aircraft maintenance licence shall complete the relevant parts of EASA Form 19 (see Appendix V) and submit it with the holder's copy of the licence to the competent authority that issued the original aircraft maintenance licence, unless the holder works in a maintenance organisation approved in accordance with Annex II (Part-145) that has a procedure in its exposition whereby such organisation may submit the necessary documentation on behalf of the aircraft maintenance licence holder.	

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<u>66.A.40(c)</u>	
Any certification privilege based upon a aircraft maintenance licence becomes invalid as soon as the aircraft maintenance licence is invalid.	

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<u>66.A.40(d)</u>	
The aircraft maintenance licence is only valid (i) when issued and/or changed by the competent authority and (ii) when the holder has signed the document.	

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66.A.45 Endorsement with aircraft ratings

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	<i>GM 66.A.45</i>
	<p>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.</p> <p>The table contains the following:</p> <ul style="list-style-type: none"> • The different aircraft groups; • For each licence (sub)category, which ratings are possible (at the choice of the applicant): <ul style="list-style-type: none"> ◦ 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) and for the B3 licence (piston-engine nonpressurised aeroplanes of 2 000 kg MTOM and below), which are the possible limitations to be included in the licence if not sufficient experience can be demonstrated in those areas. <p>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.</p>

<u>Aircraft rating requirements</u>			
Aircraft Groups	B1/B3 licence	B2 licence	C licence
Group 1 <ul style="list-style-type: none"> Complex motor-powered aircraft. Multiple engine helicopters. Aeroplanes certified above FL290. Aircraft equipped with fly-by-wire. Other aircraft when defined by the Agency. 	{For B1} Individual TYPE RATING Type training: <ul style="list-style-type: none"> Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence subcategory)	Individual TYPE RATING Type training: <ul style="list-style-type: none"> Theory + examination Practical + assessment PLUS OJT (for first aircraft in licence subcategory)	Individual TYPE RATING Type training: <ul style="list-style-type: none"> Theory + examination
Group 2: <u>Subgroups:</u> 2a: single turboprop aeroplanes (*) 2b: single turbine engine helicopters (*) 2c: single piston-engine helicopters (*) (*) Except those classified in Group 1	{For B1.1, B1.3, B1.4} Individual TYPE RATING (type training + OJT) or (type examination + practical experience) Full SUBGROUP RATING (type training + OJT) or (type examination + practical experience) on at least 3 aircraft representative of that subgroup Manufacturer SUBGROUP RATING (type training + OJT) or (type examination + practical experience) on at least 2 aircraft representative of that manufacturer subgroup	Individual TYPE RATING (type training + OJT) or (type examination + practical experience) Full SUBGROUP RATING based on demonstration of practical experience Manufacturer SUBGROUP RATING based on demonstration of practical experience	Individual TYPE RATING type training or type examination Full SUBGROUP RATING type training or type examination on at least 3 aircraft representative of that subgroup Manufacturer SUBGROUP RATING type training or type examination on at least 2 aircraft representative of that manufacturer subgroup
Group 3 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"> Pressurised aeroplanes Metal aeroplanes Composite aeroplanes Wooden aeroplanes Metal tubing & fabric aeroplanes 	Individual TYPE RATING (type training + OJT) or (type examination + practical experience) Full GROUP 3 RATING based on demonstration of practical experience	Individual TYPE RATING type training or type examination Full GROUP 3 RATING based on demonstration of practical experience
Piston-engine non-pressurised aeroplanes of 2 000 kg MTOM and below	{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"> Pressurised aeroplanes Metal aeroplanes Composite aeroplanes Wooden aeroplanes Metal tubing & fabric aeroplanes 	NOT APPLICABLE	NOT APPLICABLE

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<u>66.A.45(a)</u>	
<p>In order to be entitled to exercise certification privileges on a specific aircraft type, the holder of an aircraft maintenance licence need to have his/her licence endorsed with the relevant aircraft ratings.</p> <ul style="list-style-type: none"> — For category B1, B2 or C the relevant aircraft ratings are the following: <ol style="list-style-type: none"> 1. For group 1 aircraft, the appropriate aircraft type rating. 2. For group 2 aircraft, the appropriate aircraft type rating, manufacturer sub-group rating or full sub-group rating. 3. For group 3 aircraft, the appropriate aircraft type rating or full group rating. — For category B3, the relevant rating is 'piston-engine non-pressurised aeroplanes of 2 000 kg MTOM and below'. — For category A, no rating is required, subject to compliance with the requirements of point 145.A.35 of Annex II (Part-145). 	

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<u>66.A.45(b)</u>	<i>GM 66.A.45(b)</i>
<p>The endorsement of aircraft type ratings requires the satisfactory completion of the relevant category B1, B2 or C aircraft type training.</p>	<p>An aircraft type rating includes all the aircraft models/variants listed in column 2 of Appendix I to AMC to Part-66.</p> <p>When a person already holds a type rating on the licence and such type rating is amended in the Appendix I to AMC to Part-66 in order to include additional models/variants, there is no need for additional type training for the purpose of amending the type rating in the licence. The rating should be amended to include the new variants, upon request by the applicant, without additional requirements. However, it is the responsibility of the licence holder and, if applicable, the maintenance organisation where he/she is employed to comply with 66.A.20(b)3, 145.A.35(a) and M.A.607(a), as applicable, before he/she exercises certification privileges.</p> <p>Similarly, type training courses covering certain, but not all the models/variants included in a type rating, are valid for the purpose of endorsing the full type rating.</p>

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<u>66.A.45(c)</u>	
In addition to the requirement of point (b), the endorsement of the first aircraft type rating within a given category/sub-category requires satisfactory completion of the corresponding On the Job Training, as described in Appendix III to Annex III (Part-66).	

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<u>66.A.45(d)</u>	<i>AMC 66.A.45(d)</i>
<p>By derogation from points (b) and (c), for group 2 and 3 aircraft, aircraft type ratings may also be granted after:</p> <ul style="list-style-type: none"> — satisfactory completion of the relevant category B1, B2 or C aircraft type examination described in Appendix III to this Annex (Part-66), and — in the case of B1 and B2 category, demonstration of practical experience on the aircraft type. In that case, the practical experience shall include a representative cross section of maintenance activities relevant to the licence category. <p>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)(5), the first relevant aircraft type examination shall be at the category B1 or B2 level.</p>	<ol style="list-style-type: none"> 1. The “<i>practical experience</i>” should cover a representative cross section including at least 50 % of tasks contained in Appendix II to AMC relevant to the licence category and to the applicable aircraft type ratings or aircraft (sub)group ratings being endorsed. This experience should cover tasks from each paragraph of the Appendix II list. Other tasks than those in the Appendix II may be considered as a replacement when they are relevant. In the case of (sub)group ratings, this experience may be shown by covering one or several aircraft types of the applicable (sub)group and may include experience on aircraft classified in group 1, 2 and/or 3 as long as the experience is relevant. The practical experience should be obtained under the supervision of authorised certifying staff. 2. In the case of endorsement of individual type ratings for Group 2 and Group 3 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 %. 3. Practical experience should be demonstrated by the submission of records or a logbook showing the Appendix II tasks performed by the applicant. Typical data to be recorded are similar to those described in AMC 66.A.20(b)2.

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<u>66.A.45(e)</u>	<i>AMC 66.A.45(e)</i>
<p>For group 2 aircraft:</p> <ol style="list-style-type: none"> 1. the endorsement of manufacturer sub-group ratings for category B1 and C licence holders requires complying with the aircraft type rating requirements of at least two aircraft types from the same manufacturer which combined are representative of the applicable manufacturer sub-group; 	<ol style="list-style-type: none"> 1. For the granting of manufacturer subgroup ratings for Group 2 aircraft, for B1 and C licence holders, the sentence “<i>at least two aircraft types from the same manufacturer which combined are representative of the applicable manufacturer subgroup</i>” means that the selected aircraft types should cover all the technologies relevant to the manufacturer subgroup in the following

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<u>66.A.45(e)</u>	AMC 66.A.45(e)
<p>2. the endorsement of full sub-group ratings for category B1 and C licence holders requires complying with the aircraft type rating requirements of at least three aircraft types from different manufacturers which combined are representative of the applicable sub-group;</p> <p>3. the endorsement of manufacturer sub-groups and full sub-group ratings for category B2 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 sub-group.</p>	<p>areas:</p> <ul style="list-style-type: none"> • Flight control systems (mechanical controls/hydraulically powered controls/electromechanically powered controls); and • Avionic systems (analogue systems/digital systems); and • Structure (manufactured of metal/composite/wood). <p>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.</p> <p>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.</p> <p>2. For the granting of full subgroup ratings for Group 2 aircraft, for B1 and C licence holders, the sentence “<i>at least three aircraft types from different manufacturers which combined are representative of the applicable subgroup</i>” means that the selected aircraft types should cover all the technologies relevant to the manufacturer subgroup in the following areas:</p> <ul style="list-style-type: none"> • Flight control systems (mechanical controls/hydraulically powered controls/electromechanically powered controls); and • Avionic systems (analogue systems/digital systems); and • Structure (manufactured of metal/composite/wood). <p>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.</p> <p>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.</p> <p>3. For manufacturer subgroup ratings, the term “<i>manufacturer</i>” means the TC holder defined in the certification data sheet, which is reflected in the list of type ratings in Appendix I to AMC to Part-66.</p> <p>In the case of an aircraft rating where the type rating refers to a TC holder made of a combination of two</p>

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<u>66.A.45(e)</u>	AMC 66.A.45(e)
	<p>manufacturers which produce a similar aircraft (i.e. AGUSTA/BELL HELICOPTER TEXTRON or any case of aircraft similarly built by another manufacturer), this combination should be considered as one manufacturer.</p> <p>As a consequence:</p> <ul style="list-style-type: none"> • When a licence holder gets a manufacturer type or a manufacturer subgroup rating made of a combination of manufacturers, it covers the combination of such manufacturers. • When a licence holder who intends to endorse a full subgroup rating selects three aircraft from different manufacturers, this means from different combinations of manufacturers as applicable.

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	AMC 66.A.45(e)3
	<ol style="list-style-type: none"> 1. The “<i>practical experience</i>” should cover a representative cross section including at least 50 % of tasks contained in Appendix II to AMC relevant to the licence category and to the applicable aircraft type ratings or aircraft (sub)group ratings being endorsed. This experience should cover tasks from each paragraph of the Appendix II list. Other tasks than those in the Appendix II may be considered as a replacement when they are relevant. In the case of (sub)group ratings, this experience may be shown by covering one or several aircraft types of the applicable (sub)group and may include experience on aircraft classified in group 1, 2 and/or 3 as long as the experience is relevant. The practical experience should be obtained under the supervision of authorised certifying staff. 2. In the case of endorsement of individual type ratings for Group 2 and Group 3 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 %. 3. Practical experience should be demonstrated by the submission of records or a logbook showing the Appendix II tasks performed by the applicant. Typical data to be recorded are similar to those described in AMC 66.A.20(b)2.

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<u>66.A.45(f)</u>	AMC 66.A.45(f)1
<p>For group 3 aircraft:</p> <ol style="list-style-type: none"> the endorsement of the full group 3 rating for category B1, B2 and C 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 group 3. for category B1, unless the applicant provides evidence of appropriate experience, the group 3 rating shall be subject to the following limitations, which shall be endorsed on the licence: <ul style="list-style-type: none"> — pressurised aeroplanes — metal structure aeroplanes — composite structure aeroplanes — wooden structure aeroplanes — aeroplanes with metal tubing structure covered with fabric. 	<ol style="list-style-type: none"> The “<i>practical experience</i>” should cover a representative cross section including at least 50 % of tasks contained in Appendix II to AMC relevant to the licence category and to the applicable aircraft type ratings or aircraft (sub)group ratings being endorsed. This experience should cover tasks from each paragraph of the Appendix II list. Other tasks than those in the Appendix II may be considered as a replacement when they are relevant. In the case of (sub)group ratings, this experience may be shown by covering one or several aircraft types of the applicable (sub)group and may include experience on aircraft classified in group 1, 2 and/or 3 as long as the experience is relevant. The practical experience should be obtained under the supervision of authorised certifying staff. In the case of endorsement of individual type ratings for Group 2 and Group 3 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 %. Practical experience should be demonstrated by the submission of records or a logbook showing the Appendix II tasks performed by the applicant. Typical data to be recorded are similar to those described in AMC 66.A.20(b)2.

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<u>66.A.45(g)</u>	AMC 66.A.45(g)1
<p>For the B3 licence:</p> <ol style="list-style-type: none"> 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. unless the applicant provides evidence of appropriate experience, the rating referred to in point 1 shall be subject to the following limitations, which shall be endorsed on the licence: <ul style="list-style-type: none"> — wooden structure aeroplanes — aeroplanes with metal tubing structure covered with fabric — metal structure aeroplanes — composite structure aeroplanes. 	<ol style="list-style-type: none"> The “<i>practical experience</i>” should cover a representative cross section including at least 50 % of tasks contained in Appendix II to AMC relevant to the licence category and to the applicable aircraft type ratings or aircraft (sub)group ratings being endorsed. This experience should cover tasks from each paragraph of the Appendix II list. Other tasks than those in the Appendix II may be considered as a replacement when they are relevant. In the case of (sub)group ratings, this experience may be shown by covering one or several aircraft types of the applicable (sub)group and may include experience on aircraft classified in group 1, 2 and/or 3 as long as the experience is relevant. The practical experience should be obtained under the supervision of authorised certifying staff. In the case of endorsement of individual type ratings for Group 2 and Group 3 aircraft, for the second aircraft type of each manufacturer (sub)group the practical

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<u>66.A.45(g)</u>	<i>AMC 66.A.45(g)1</i>
	<p>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 %.</p> <p>3. Practical experience should be demonstrated by the submission of records or a logbook showing the Appendix II tasks performed by the applicant. Typical data to be recorded are similar to those described in AMC 66.A.20(b)2.</p>

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66.A.50 Limitations

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<u>66.A.50(a)</u>	
Limitations introduced on an aircraft maintenance licence are exclusions from the certification privileges and affect the aircraft in its entirety.	

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<u>66.A.50(b)</u>	<i>AMC 66.A.50(b)</i>
<p>For limitations referred to in point 66.A.45, limitations shall be removed upon:</p> <ol style="list-style-type: none"> demonstration of appropriate experience; or after a satisfactory practical assessment performed by the competent authority. 	<ol style="list-style-type: none"> The appropriate experience required to remove the limitations referred to in 66.A.45(f) and (g) should consist of the performance of a variety of tasks appropriate to the limitations under the supervision of authorised certifying staff. This should include the tasks required by a scheduled annual inspection. Alternatively, this experience may also be gained, if agreed by the competent authority, by theoretical and practical training provided by the manufacturer, as long as an assessment is further carried out and recorded by this manufacturer. It may be acceptable to have this experience on just one aircraft type, provided that this type is representative of the (sub)group in relation to the limitation being removed. The application for the limitation removal should be supported by a record of experience signed by the authorised certifying staff or by an assessment signed by the manufacturer after completion of the applicable theoretical and practical training.

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<u>66.A.50(c)</u>	
For limitations referred to in point 66.A.70, limitations shall be removed upon satisfactory completion of examination on those modules/subjects defined in the applicable conversion report referred to in point 66.B.300.	

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66.A.55 Evidence of qualification

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<u>66.A.55</u>	
Personnel exercising certification privileges as well as support staff shall produce their licence, as evidence of qualification, within 24 hours upon request by an authorised person.	

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66.A.70 Conversion provisions

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	<i>GM 66.A.70</i>
	<p>1. As described in point 66.A.70, the conversion provisions apply to the holder of a certifying staff qualification valid in a Member State prior to the date of entry into force of Annex III (Part-66). The sentence <i>“the holder of a certifying staff qualification valid in a Member State”</i> means any person who had a qualification valid in that Member State allowing that person the performance of activities identical to the privileges of “certifying staff” contained in Regulation (EC) 2042/2003. This means that the signature of that person was sufficient to declare that the maintenance had been properly performed and the aircraft was ready for service and fit for flight in respect to such maintenance.</p> <p>This should not be mistaken for the responsibilities linked to the airworthiness review, which was performed at different periods (typically varying from 6 months to 3 years) in the national systems. This is an activity which is performed at very specific points of time and not after every maintenance activity. As an airworthiness review (or equivalent term used in the national systems) is not performed after every maintenance event before the aircraft takes flight, an airworthiness review cannot be considered as a maintenance release. This means that</p>

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
	<p style="text-align: center;">GM 66.A.70</p> <p>the conversion provisions described in 66.A.70 are not applicable to persons performing airworthiness review functions unless their signature was required after every maintenance event before the aircraft can take flight.</p> <p>2. The conversion applies to “certifying staff qualifications” such as, for example:</p> <ul style="list-style-type: none"> • Holding a national licence (or completed the process to obtain such a national licence); • Having completed a qualification process defined by the competent authority to become certifying staff; • Having completed the qualification requirements for certifying staff within a maintenance organisation, as defined in their procedures. <p>This does not mean that in order to be entitled to a conversion process, the applicant has to be exercising certification privileges. A person may hold a “certifying staff qualification” while not having certification privileges (or while exercising very limited certification privileges below his/her qualification) for different reasons such as, for example, the following:</p> <ul style="list-style-type: none"> • The person is working as “support staff” in the base maintenance environment; • The person has been authorised only for a very limited range of tasks (lower than what he/she would be entitled if his/her qualification is considered) since the person is working in a line station where the scope of tasks is very limited; • The person holds a licence with a wider scope than the scope of the organisation where he/she is employed; • The person is working outside the aviation industry or is temporarily on leave due to different reasons (medical, personal, etc.). <p>These persons are entitled to have the conversion performed in accordance with the full scope of their qualification and the full privileges that they would be entitled to hold on the basis of such qualification.</p> <p>3. As described in point 66.A.70, certifying staff qualifications eligible for conversion are those valid “prior to the date of entry into force of Annex III (Part-66)”, which means those qualifications valid before the following dates:</p> <ul style="list-style-type: none"> • 28 September 2005 for aircraft above 5 700 kg MTOM (ref. EC2042/2003, Article 7, point 3(e)); • 28 September 2006 for aircraft of 5 700 kg MTOM

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
	GM 66.A.70
	<p>and below (ref. EC2042/2003, Article 7, point 3(f)).</p> <p>Nevertheless, since the B3 licence did not exist at those dates, certifying staff qualifications eligible for conversion to a B3 licence are those valid before 28 September 2012, which is the date when the authority has the obligation to start issuing such licences in accordance with (EC) 2042/2003, Article 7, point 3(h), item (i).</p> <p>4. Although only those certifying staff qualifications gained prior to the dates indicated above are eligible for conversion, this does not mean that the application for conversion has to be submitted prior to those dates. The applicant is entitled to have the conversion performed irrespective of when he/she applies for conversion.</p> <p>5. A certifying staff qualification can be subject to more than one conversion process and can also be converted to more than one licence (with any applicable limitations). This could be the case, for example, for a person who already had the certifying staff qualification converted to a B1.2 licence with limitations linked to some missing elements of the Part-66 Appendix I and II standard (following 66.A.70(c)). This person would be entitled to apply and have his/her certifying staff qualification converted to a B1.2 or a B3 licence on the basis of 66.A.70(d), which would mean that there is no need to compare with the Part-66 Appendix I and II standard, introducing only those limitations required to maintain the existing privileges.</p>

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<u>66.A.70(a)</u>	
<p>The holder of a certifying staff qualification valid in a Member State, prior to the date of entry into force of Annex III (Part-66) shall be issued an aircraft maintenance licence by the competent authority of this Member State without further examination subject to the conditions specified in Section B Subpart D.</p>	

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<u>66.A.70(b)</u>	
<p>A person undergoing a certifying staff qualification process valid in a Member State, prior to the date of entry into force of Annex III (Part-66) may continue to be qualified. The holder of a certifying staff qualification gained following such process shall be issued an aircraft maintenance licence by the competent authority of this Member State without further examination subject to the conditions specified in</p>	

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.70(b)</u>	
Section B Subpart D.	

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<u>66.A.70(c)</u>	<i>GM 66.A.70(c)</i>
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 this Regulation and (ii) the basic knowledge requirements and the basic examination standards laid down in Appendix I and II to this Annex (Part-66).	<p>For example, a limitation could be where a person holds a pre-existing certifying staff qualification which covered, to the standard of Part-66 Appendix I and II, all the modules/subjects corresponding to the B1 licence except for electrical power systems. This person would receive a Part-66 aircraft maintenance licence in the B1 category with a limitation (exclusion) on electrical power systems.</p> <p>For removal of limitations, refer to 66.A.50(c).</p>

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<u>66.A.70(d)</u>	<i>GM 66.A.70(d)</i>
By derogation to paragraph (c) for aircraft not involved in commercial air transport other than large aircraft, the aircraft maintenance licence shall contain limitations in accordance with point 66.A.50 to ensure that the certifying staff privileges valid in the Member State before the entry into force of this Regulation and the privileges of the converted Part-66 aircraft maintenance licence remain the same.	<p>In the case of aircraft not involved in commercial air transport other than large aircraft, an example of limitations could be where a person holds a pre Part-66 qualification which covered privileges to release work performed on aircraft structures, powerplant, mechanical and electrical systems but excluded privileges on aircraft equipped with turbine engine, aircraft above 2 000 kg MTOM, pressurised aircraft and aircraft equipped with retractable landing gear. This person would receive a Part-66 aircraft maintenance licence in the B1.2 or B3 (sub)category with the following limitations (exclusions):</p> <ul style="list-style-type: none"> • Aircraft involved in commercial air transport (this limitation always exists); • Aircraft above 2 000 kg MTOM; • Pressurised aircraft; • Aircraft equipped with retractable landing gear. <p>Another example of limitations could be where a pilot-owner holds a pre Part-66 qualification which covered privileges to release work performed on aircraft structures, powerplant, mechanical and electrical systems but limited to his/her own aircraft and to a particular aircraft type (for example, a Cessna 172). This pilot-owner would receive a Part-66 aircraft maintenance licence in the B1.2 or B3 (sub)category with the following limitations (exclusions):</p> <ul style="list-style-type: none"> • Aircraft involved in commercial air transport (this limitation always exists); • Aircraft other than a Cessna 172;

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.A.70(d)</u>	GM 66.A.70(d)
	<ul style="list-style-type: none"> • Aircraft not owned by the licence holder. <p>The essential aspect is that the limitations are established in order to maintain the privileges of the pre Part-66 qualification, without comparing the previous qualification with the standard of Part-66 Appendix I and II.</p> <p>For removal of limitations, refer to 66.A.50(c).</p>

SECTION B PROCEDURES FOR COMPETENT AUTHORITIES

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Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
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SUBPART A GENERAL

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66.B.1 Scope

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66.B.1

This section establishes the procedures including the administrative requirements to be followed by the competent authorities in charge of the implementation and the enforcement of Section A of this Annex (Part-66).

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66.B.10 Competent authority

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66.B.10(a)

General

The Member State shall designate a competent authority with allocated responsibilities for the issuance, continuation, change, suspension or revocation of aircraft maintenance licences.

This competent authority shall establish an adequate organisational structure to ensure compliance with this Annex (Part-66).

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66.B.10(b)

Resources

The competent authority shall be appropriately staffed to ensure the implementation of the requirements of this Annex (Part-66).

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66.B.10(c)

Procedures

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.B.10(c)</u>	
The competent authority shall establish documented procedures detailing how compliance with this Annex (Part-66) is accomplished. These procedures shall be reviewed and amended to ensure continued compliance.	

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66.B.20 Record-keeping

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	<i>AMC 66.B.20</i>
	<ol style="list-style-type: none"> 1. The record-keeping system should ensure that all records are accessible whenever needed within a reasonable time. These records should be organised in a consistent way throughout the competent authority (chronological, alphabetical order, etc.). 2. All records containing sensitive data regarding applicants or organisations should be stored in a secure manner with controlled access to ensure confidentiality of this kind of data. 3. All computer hardware used to ensure data backup should be stored in a different location from that containing the working data in an environment that ensures they remain in good condition. When hardware or software changes take place, special care should be taken that all necessary data continues to be accessible at least through the full period specified in 66.B.20.

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<u>66.B.20(a)</u>	
The competent authority shall establish a system of record-keeping that allows adequate traceability of the process to issue, revalidate, change, suspend or revoke each aircraft maintenance licence.	

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<u>66.B.20(b)</u>	
<p>These records shall include for each licence:</p> <ol style="list-style-type: none"> 1. the application for an aircraft maintenance licence or change to that licence, including all supporting documentation; 2. a copy of the aircraft maintenance licence including any 	

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.B.20(b)</u>	
<p>changes;</p> <ol style="list-style-type: none"> 3. copies of all relevant correspondence; 4. details of any exemption and enforcement actions; 5. any report from other competent authorities relating to the aircraft maintenance licence holder; 6. the records of examinations conducted by the competent authority; 7. the applicable conversion report used for conversion; 8. the applicable credit report used for crediting. 	

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<u>66.B.20(c)</u>	
Records referred to in points 1 to 5 of point (b) shall be kept at least 5 years after the end of the licence validity.	

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<u>66.B.20(d)</u>	
Records referred to in points 6, 7 and 8 of point (b) shall be kept for an unlimited period.	

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66.B.25 Mutual exchange of information

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<u>66.B.25(a)</u>	
In order to implement the requirement of this Regulation, the competent authorities shall participate in a mutual exchange of information in accordance with Article 15 of Regulation (EC) No 216/2008.	

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<u>66.B.25(b)</u>	
Without prejudice to the competencies of the Member States, in the case of a potential safety threat involving several Member States, the concerned competent authorities shall assist each other in carrying out the	

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.B.25(b)</u>	
necessary oversight action.	

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66.B.30 Exemptions

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<u>66.B.30</u>	
All exemptions granted in accordance with Article 14.4 of Regulation (EC) No 216/2008 shall be recorded and retained by the competent authority.	

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SUBPART B ISSUE OF AN AIRCRAFT MAINTENANCE LICENCE

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

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66.B.100 Procedure for the issue of an aircraft maintenance licence by the competent authority

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	AMC 66.B.100
	<ol style="list-style-type: none"> 1. Applicants claiming the maximum reduction in 66.A.30(a) total experience based upon successful completion of a 147.A.200 approved basic training course should include the Part-147 certificate of recognition for approved basic training. 2. Applicants claiming reduction in 66.A.30(a) total experience based upon successful completion of training considered relevant by the competent authority and considered as a skilled worker in a technical trade should include the relevant certificate of successful completion of training. 3. Applicants claiming credit against the 66.A.30(a) total experience requirement by virtue of 66.A.30(a) non-civil aircraft maintenance experience may only be granted such credit where the Member State has recognised such non-civil aircraft maintenance experience. The competent authority recognising non-civil aircraft maintenance experience should have specified who within the non-civil environment may make a statement that the applicant has met relevant maintenance experience. The applicant should include a detailed statement of such maintenance experience signed by the non-civil maintenance authority in accordance with the conditions specified by the competent authority. 4. The competent authority should check that the experience record satisfies above paragraphs in terms of content and the countersigning signature.

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	AMC 66.B.100 to 115
	Aircraft type endorsement should use the standard codes contained in Appendix I to the AMCs.

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<u>66.B.100(a)</u>	
On receipt of EASA Form 19 and any supporting documentation, the competent authority shall verify EASA Form 19 for completeness and ensure that the experience claimed meets the requirement of this Annex (Part-66).	

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<u>66.B.100(b)</u>	
The competent authority shall verify an applicant's examination status and/or confirm the validity of any credits to ensure that all required modules of Appendix I have been met as required by this Annex (Part-66).	

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<u>66.B.100(c)</u>	
When having verified the identity and date of birth of the applicant and being satisfied that the applicant meets the standards of knowledge and experience required by this Annex (Part-66), the competent authority shall issue the relevant aircraft maintenance licence to the applicant. The same information shall be kept on competent authority records.	

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<u>66.B.100(d)</u>	
In the case where aircraft types or groups are endorsed at the time of the issuance of the first aircraft maintenance licence, the competent authority shall verify compliance with point 66.B.115.	

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

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	AMC 66.B.105
	1. The maintenance organisation approved under Part-145 should include the procedure in the organisation's exposition (Chapter 3.16) and this procedure should be

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
	AMC 66.B.105
	<p>audited by the competent authority at least once in each 12-month period. This procedure should include a limitation stating that it is only applicable to the case where the competent authority for the Part-145 approval and for the Part-66 licence is the same.</p> <ol style="list-style-type: none"> 2. The Part-145 organisation should check that the experience records have been properly countersigned. 3. The maintenance organisation approved under Part-145 may keep the experience record of applicants in a different form from that of application EASA Form 19 but such different form or manner should be acceptable to the competent authority.

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	AMC 66.B.100 to 115
	Aircraft type endorsement should use the standard codes contained in Appendix I to the AMCs.

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<u>66.B.105(a)</u>	
A maintenance organisation approved in accordance with Annex II (Part-145), when authorised to carry out this activity by the competent authority, may (i) prepare the aircraft maintenance licence on behalf of the competent authority or (ii) make recommendations to the competent authority regarding the application from an individual for a aircraft maintenance licence so that the competent authority may prepare and issue such licence.	

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<u>66.B.105(b)</u>	
Maintenance organisations referred to in point (a) shall ensure compliance with points 66.B.100 (a) and (b).	

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<u>66.B.105(c)</u>	
In all cases, the aircraft maintenance licence can only be issued to the applicant by the competent authority.	

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

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	AMC 66.B.110
	In the case of computer-generated licences, the licence should be reissued.

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	AMC 66.B.100 to 115
	Aircraft type endorsement should use the standard codes contained in Appendix I to the AMCs.

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<u>66.B.110(a)</u>	
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 or subcategory on the aircraft maintenance licence by stamp and signature or reissue the licence.	

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<u>66.B.110(b)</u>	
The competent authority record system shall be changed accordingly.	

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

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	AMC 66.B.115
	<p>(a) Where the type training has not been conducted by a Part-147 organisation, there should be supporting documents confirming to the competent authority that:</p> <ul style="list-style-type: none"> • the type training has been approved by the competent authority in accordance with 66.B.130; • the applicant has completed the elements of the

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
	AMC 66.B.115
	<p>approved type training; and</p> <ul style="list-style-type: none"> the trainee has been successfully examined/assessed. <p>(b) Aircraft type training may be subdivided in airframe and/or powerplant and/or avionics/electrical systems type training courses.</p> <ol style="list-style-type: none"> Airframe type training course means a type training course including all relevant aircraft structure and electrical and mechanical systems excluding the powerplant. Powerplant type training course means a type training course on the bare engine, including the build-up to a quick engine change unit. The interface of the engine/airframe systems should be addressed by either airframe or powerplant type training course. In some cases, such as for general aviation, it may be more appropriate to cover the interface during the airframe course due to the large variety of aircraft that can have the same engine type installed. Avionics/electrical systems type training course means type training on avionics and electrical systems covered by but not necessarily limited to ATA Chapters 22, 23, 24, 25, 27, 31, 33, 34, 42, 44, 45, 46, 73 and 77 or equivalent. <p>(c) For the acceptance of the OJT programme described in Section 6 of Appendix III to Part-66, the licencing competent authority should develop adequate procedures which may be similar to the procedure described in AMC 66.B.130 for the “direct approval of aircraft type training”.</p> <p>In the case where the licencing competent authority is different from the competent authority of the maintenance organisation which provides the OJT, the licencing authority may take into consideration the fact that the maintenance organisation may already have the OJT programme accepted by their own competent authority (through Chapter 3.15 of the MOE, as described in AMC 145.A.70(a)).</p>

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	AMC 66.B.100 to 115
	Aircraft type endorsement should use the standard codes contained in Appendix I to the AMCs.

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Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.B.115(a)</u>	
<p>On receipt of a satisfactory EASA Form 19 and any supporting documentation demonstrating compliance with the requirements of the applicable rating together with the accompanying aircraft maintenance licence, the competent authority shall either:</p> <ol style="list-style-type: none"> 1. endorse the applicant's aircraft maintenance licence with the applicable aircraft rating; or 2. reissue the said licence to include the applicable aircraft rating; or 3. remove the applicable limitations in accordance with point 66.A.50. <p>The competent authority record system shall be changed accordingly.</p>	

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<u>66.B.115(b)</u>	
<p>In the case where the complete type training is not conducted by maintenance training organisation appropriately approved in accordance with Annex IV (Part-147), the competent authority shall be satisfied that all type training requirements are complied with before the type rating is issued.</p>	

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<u>66.B.115(c)</u>	
<p>In the case where the On the Job Training is not required, the aircraft type rating shall be endorsed based on a Certificate of Recognition issued by a maintenance training organisation approved in accordance with Annex IV (part-147).</p>	

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<u>66.B.115(d)</u>	
<p>In the case where the aircraft type training is not covered by a single course, the competent authority shall be satisfied prior to the type rating endorsement that the content and length of the courses fully satisfy the scope of the licence category and that the interface areas have been appropriately addressed.</p>	

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<u>66.B.115(e)</u>	
In the case of differences training, the competent authority shall be satisfied that (i) the applicant's previous qualification, supplemented by (ii) either a course approved in accordance with Annex IV (Part-147) or a course directly approved by the competent authority, are acceptable for type rating endorsement.	

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<u>66.B.115(f)</u>	
Compliance with the practical elements shall be demonstrated (i) by the provision of detailed practical training records or a logbook provided by a maintenance organisation appropriately approved in accordance with Annex II (Part-145) or, where available, (ii) by a training certificate covering the practical training element issued by a maintenance training organisation appropriately approved in accordance with Annex IV (part-147).	

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<u>66.B.115(g)</u>	
Aircraft type endorsement shall use the aircraft type ratings specified by the Agency.	

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

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	AMC 66.B.120
	The competent authority should not carry out any investigation to ensure that the licence holder is in current maintenance practice as this is not a condition for the renewal of a licence. Ensuring the continued validity of the certification privileges is the responsibility of the approved Part-145/Subpart-F maintenance organisation or the certifying staff in accordance with M.A.801(b)2. For the purpose of ensuring the continued validity of the certification privileges the competent authority may, when periodically reviewing the organisations in accordance with 145.B.30 or M.B.604, or during on-the-spot checks, request the licence holder to provide documentary evidence of compliance with 66.A.20(b) when exercising certification privileges.

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<u>66.B.120(a)</u>	
<p>The competent authority shall compare the holder's aircraft maintenance licence with the competent authority records and verify any pending revocation, suspension or change action pursuant to point 66.B.500. If the documents are identical and no action is pending pursuant to point 66.B.500, the holder's copy shall be renewed for 5 years and the file endorsed accordingly.</p>	

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<u>66.B.120(b)</u>	
<p>If the competent authority records are different from the aircraft maintenance licence held by the licence holder:</p> <ol style="list-style-type: none"> 1. he competent authority shall investigate the reasons for such differences and may choose not to renew the aircraft maintenance licence. 2. he competent authority shall inform the licence holder and any known maintenance organisation approved in accordance with Annex I (Part-M) Subpart F or Annex II (Part-145) that may be directly affected of such fact. 3. he competent authority shall, if necessary, take action in accordance with point 66.B.500 to revoke, suspend or change the licence in question. 	

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

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<u>66.B.125(a)</u>	
<p>Individual aircraft type ratings already endorsed on the aircraft maintenance licence referred to in point 4 of Article 5 shall remain on the licence and shall not be converted to new ratings unless the licence holder fully meets the requirements for endorsement defined in point 66.A.45 of this Annex (Part-66) for the corresponding group/sub-group ratings.</p>	

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<p align="center"><u>66.B.125(b)</u></p>	
<p>The conversion shall be performed in accordance with the following conversion table:</p> <p>1. for category B1 or C:</p> <ul style="list-style-type: none"> — helicopter piston engine, full group: converted to "full sub-group 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 sub-group 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 sub-group 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 sub-group 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". 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: metal structure aeroplanes, composite structure aeroplanes and metal tubing and fabric aeroplanes, — aeroplane multiple 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: 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: metal 	

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<p style="text-align: center;"><u>66.B.125(b)</u></p> <p>structure aeroplanes, wooden structure aeroplanes and metal tubing and fabric aeroplanes,</p> <ul style="list-style-type: none"> — aeroplane multiple 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: 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 sub- group 2a" plus the aircraft type ratings for those single turboprop aeroplanes of that manufacturer which did not require an aircraft type rating in the previous system and are in group 1, — aeroplane turbine — multiple engine, full group: converted to the aircraft type ratings for those multiple turboprop aeroplanes which did not require an aircraft type rating in the previous system; <p>2. for category B2:</p> <ul style="list-style-type: none"> — aeroplane: converted to "full sub-group 2a" and "full group 3", plus the aircraft type ratings for those aeroplanes which did not require an aircraft type rating in the previous system and are in group 1, — helicopter: converted to "full sub-groups 2b and 2c", plus the aircraft type ratings for those helicopters which did not require an aircraft type rating in the previous system and are in group 1; <p>3. for category C:</p> <ul style="list-style-type: none"> — aeroplane: converted to "full sub-group 2a" and "full group 3", plus the aircraft type ratings for those aeroplanes which did not require an aircraft type rating in the previous system and are in group 1, — helicopter: converted to "full sub-groups 2b and 2c", plus the aircraft type ratings for those helicopters which did not require an aircraft type rating in the previous system and are in group 1. 	

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<u>66.B.125(c)</u>	
If the licence was subject to limitations following the conversion process referred to in point 66.A.70, these limitations shall remain on the licence, unless they are removed under the conditions defined in the relevant conversion report referred to in point 66.B.300.	

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66.B.130 Procedure for the direct approval of aircraft type training

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	AMC 66.B.130
	<ol style="list-style-type: none"> 1. The procedure for the direct approval of type training courses by the competent authority should require that the following aspects are described by the organisation providing the training: <ul style="list-style-type: none"> • The content and the duration of the theoretical and/or practical elements, as applicable, in accordance with Appendix III to Part-66, including the Training Need Analysis (TNA); • The teaching methods and instructional equipment; • The material and documentation provided to the student; • The qualification of instructors, examiners and/or assessors, as applicable; • The examination and/or assessment procedure, as applicable. Further guidance about the assessment and the designated assessors is given in Appendix III to AMC to Part-66; • The documentation and records to be provided to the student to justify the satisfactory completion of the training course and related examination/assessment. This should include not only a certificate of completion but enough documentation and records to justify that the content and duration approved has been met and that the examination/assessment has been successfully passed. 2. The above criteria apply to a full course as well as to a partial course such as the practical element of a type training course and its assessment. 3. The procedure should also indicate how the competent authority is going to audit the proper performance of the approved course. 4. The direct approval of aircraft type training should be

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	AMC 66.B.130
	done on a case-by-case basis and should not be granted for long-term periods, since it is not a privilege of the organisation providing the training.

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<u>66.B.130</u>	
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 the aircraft type training complies with Appendix III of this Annex (Part-66).	

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SUBPART C EXAMINATIONS

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

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66.B.200 Examination by the competent authority

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	GM 66.B.200
	<ol style="list-style-type: none"> Questions may be prepared in the national language but the use of aviation English is recommended wherever possible. The primary purpose of essay questions is to determine that the candidates can express themselves in a clear and concise manner and can prepare a concise technical report, which is why only a few essay questions are required. Oral type questions may not be used as the primary means of examination because of the difficulty in establishing consistency of standards between examiners or day-to-day. However, nothing prevents the competent authority from meeting potential certifying staff for the purpose of ensuring that they understand their obligations and responsibilities in the application of maintenance Parts. For pass mark purposes, the essay questions should be considered as separate from the multiple choice questions. Multiple choice question (MCQ) generation. The following principles should be observed when developing multiple choice questions: <ol style="list-style-type: none"> The examination should measure clearly formulated goals. Therefore, the field and depth of knowledge to be measured by each question should be fully identified. All the questions should be of the multiple choice type with three alternative answers. Questions that require specialised knowledge of specific aircraft types should not be asked in a basic licence examination. The use of abbreviations and acronyms should generally be avoided. However, where needed, only internationally recognised abbreviations and acronyms should be used. In case of doubt, use the full form, e.g. angle of attack = 12 degrees instead of

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
	<p style="text-align: center;">GM 66.B.200</p> <p>a = 12°.</p> <ul style="list-style-type: none"> (e) Questions and answers should be formulated as simply as possible: the examination is not a test of language. Complex sentences, unusual grammar and double negatives should be avoided. (f) A question should comprise one complete positive proposition. No more than 3 different statements should appear among the suggested responses; otherwise, the candidate may be able to deduce the correct answer by eliminating the unlikely combinations of statements. (g) Questions should have only one true answer. (h) The correct answer should be absolutely correct and complete or, without doubt, the most preferable. Responses that are so essentially similar that the choice is a matter of opinion rather than a matter of fact should be avoided. The main interest in MCQs is that they can be quickly performed: this is not achieved if doubt exists about the correct answer. (i) The incorrect alternatives should seem equally plausible to anyone ignorant of the subject. All alternatives should be clearly related to the question and be of similar vocabulary, grammatical structure 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 should not be mere random numbers. (j) Calculators are not allowed during examination. Therefore, all calculations should be feasible without a calculator. Where a question involves calculations not feasible without a calculator, such as 10 , then the question should specify the approximate value of 10 . (k) Questions should be referred to Part-66 Appendix I examination syllabus. <p>6. Essay question generation:</p> <ul style="list-style-type: none"> (a) The purpose of the essay is to allow the competent authority to determine if candidates can express themselves in a clear and concise manner in the form of a written response, in a technical report format using the technical language of the aviation industry. The essay examination also allows assessing, in part, the technical knowledge retained by the individual and with a practical application relevant to a maintenance scenario. (b) Questions should be written so as to be broad enough to be answered by candidates for all licence category or subcategories (Cat A, B1, B2 and B3) and comply with the following general guidelines:

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
	<p>GM 66.B.200</p> <ul style="list-style-type: none"> <li>• the question topic selected should be generic, applicable to mechanical as well as avionic licence categories and have a common technical difficulty level as indicated in Part -66, Appendix I; <li>• cover technology applicable to most areas of aircraft maintenance; <li>• reflects common working practises; <li>• it is not type or manufacturer specific and avoids subjects which are rarely found in practice; <li>• when drafting a question, there is a need to ensure that consideration is given to the limited practical experience that most candidates will have. <p>(c) To make the questions and the marking procedures as consistent as possible, each question and model answer, with the required key areas (see below), should be reviewed independently by at least 2 technical staff members.</p> <p>(d) When raising questions, the following should be considered:</p> <ul style="list-style-type: none"> <li>• Each essay question will have a time allowance of 20 minutes. <li>• A complete A4 side is provided for each question and answer; if required, the answer can be extended onto the reverse side of the page. <li>• The question should be such that the answer expected will be at the level shown for that subject in the module syllabus. <li>• The question should not be ambiguous but should seek a broad reply rather than be limited in scope for answer. <li>• The question should lend itself to be written in a technical report style, in a logical sequence (beginning, middle and end), containing the applicable and relevant technical words needed in the answer. <li>• Do not ask for drawings/sketches to support the essay. <li>• The question should be relevant to the category and level of difficulty listed in the syllabus, e.g. a description of a typical general aviation system may not be acceptable for a typical commercial aeroplane. <p>• Subject to obvious constraints in relation to the</p>

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
	<p>GM 66.B.200</p> <p>topic being addressed the question should have a strong bias towards the practical maintenance of a system/component and the answer should show an understanding of normal and deteriorated conditions of an aircraft and its systems.</p> <p>Variations on alternative possible answers which have not been thought of may have to be taken into account to aid the examiner when marking. If considered relevant, the model answer should be amended to include these new points.</p> <ul style="list-style-type: none"> <li>(e) Because of the difficulty in marking an essay answer using key points only, there is a need for the way in which the report was written to be assessed and taken into consideration. <li>(f) The total points for each question will add up to 100 and will need to reflect both the combination of the technical (key point) element and the report style element. <li>(g) Each key point will be graded upon its importance and have point weighting allocated to it. The total weight will represent 60 % of the mark. <li>(h) Key points are the 'important elements' that may be knowledge- or experience-based and will include other maintenance-orientated factors such as relevant safety precautions or legislative practices, if applicable. Excessive reference to the need for MM referral or safety checks may be considered wasteful. <li>(i) The answer to the question will be analysed for the clarity and manner in which the essay report is presented and have a weighting allocated to it which will represent 40 % of the mark. <li>(j) The answer should show the candidate's ability to express himself/herself in technical language. This includes readability of the language, basic grammar and use of terminology. <li>(k) The report starts in the beginning and has logical process to reach a conclusion. <li>(l) Supporting diagrams should not be encouraged but, if used, should supplement the answer and not replace the need for a broad text answer. <li>(m) The report should not be indexed, itemised or listed. <li>(n) Within reason, the candidate should not be penalised for incorrect spelling. <li>(o) A zero mark should only be given in exceptional circumstances. Even if the student misunderstands the question and gives an answer to a different question, a sympathetic mark even if only for the report style should be given, this could add up to the

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
	GM 66.B.200
	<p>maximum percentage allowed.</p> <p>(p) The two allocated marks should be added together and written into the answer paper.</p> <p>(q) If an answer resulting in a borderline failure is principally due to “written report errors,” the paper should be discussed and the mark agreed, if possible, with another examiner.</p>

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<u>66.B.200(a)</u>	
All examination questions shall be kept in a secure manner prior to an examination, to ensure that candidates will not know which particular questions will form the basis of the examination.	

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<u>66.B.200(b)</u>	
<p>The competent authority shall nominate:</p> <ol style="list-style-type: none"> 1. persons who control the questions to be used for each examination; 2. examiners who shall be present during all examinations to ensure the integrity of the examination. 	

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<u>66.B.200(c)</u>	
Basic examinations shall follow the standard specified in Appendix I and II to this Annex (Part-66).	

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<u>66.B.200(d)</u>	
Type training examinations and type examinations shall follow the standard specified in Appendix III to this Annex (Part-66).	

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<u>66.B.200(e)</u>	
New essay questions shall be raised at least every 6 months and questions already used withdrawn or rested from use. A record of the questions used shall be retained in the records for reference.	

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<u>66.B.200(f)</u>	
All examination papers shall be handed out at the start of the examination to the candidate and handed back to the examiner at the end of the allotted examination time period. No examination paper may be removed from the examination room during the allotted examination time period.	

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<u>66.B.200(g)</u>	
Apart from specific documentation needed for type examinations, only the examination paper may be available to the candidate during the examination.	

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<u>66.B.200(h)</u>	
Examination candidates shall be separated from each other so that they cannot read each other's examination papers. They may not speak to any person other than the examiner.	

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<u>66.B.200(i)</u>	
Candidates who are proven to be cheating shall be banned from taking any further examination within 12 months of the date of the examination in which they were found cheating.	

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SUBPART D CONVERSION OF CERTIFYING STAFF QUALIFICATIONS

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

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66.B.300 General

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	GM 66.B.300
	<p>As described in point 66.B.300, certifying staff qualifications eligible for conversion are those valid <i>“prior to the entry into force of the applicable requirements of this Annex (Part-66)”</i>, which means those qualifications valid before the following dates:</p> <ul style="list-style-type: none"> • 28 September 2005 for aircraft above 5 700 kg MTOM (ref. EC2042/2003, Article 7, point 3(e)); • 28 September 2006 for aircraft of 5 700 kg MTOM and below (ref. EC2042/2003, Article 7, point 3(f)). <p>Nevertheless, since the B3 licence did not exist at those dates, certifying staff qualifications eligible for conversion to a B3 licence are those valid before 28 September 2012, which is the date where the authority has the obligation to start issuing such licences in accordance with (EC) 2042/2003, Article 7, point 3(h), item (i).</p>

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<u>66.B.300(a)</u>	
The competent authority may only convert qualifications (i) obtained in the Member State for which it is competent, without prejudice to bilateral agreements and (ii) valid prior to the entry into force of the applicable requirements of this Annex (Part-66).	

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<u>66.B.300(b)</u>	
The competent authority may only perform the conversion in accordance with a conversion report established pursuant to points 66.B.305 or 66.B.310, as applicable.	

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
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<u>66.B.300(c)</u>	
Conversion reports shall be either (i) developed by the competent authority or (ii) approved by the competent authority to ensure compliance with this Annex (Part-66).	

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<u>66.B.300(d)</u>	
Conversion reports together with any change of these shall be kept on record by the competent authority in accordance with point 66.B.20.	

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66.B.305 Conversion report for national qualifications

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<u>66.B.305(a)</u>	<i>AMC 66.B.305(a)</i>
The conversion report for national certifying staff qualifications shall describe the scope of each type of qualification, including the associated national licence, if any, the associated privileges and include a copy of the relevant national regulations defining these.	<ol style="list-style-type: none"> 1. Conversion reports prepared on the basis of point 66.A.70(c) should include a comparison between the scope of the national qualification (i.e., the national qualification requirements) and the scope of the Part-66 licence qualification (i.e., the Part-66 qualification requirements), which should be performed on the basis of a detailed analysis of the national and Part-66 basic qualification standards. The report should identify where a difference between the two standards exists and where such a difference would lead to a limitation on the Part-66 licence. 2. Conversion reports prepared on the basis of point 66.A.70(d), which are limited to aircraft not involved in commercial air transport other than large aircraft, should include the privileges associated to the national qualification. The report should identify which limitations are needed on the Part-66 licence to maintain these privileges.

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<u>66.B.305(b)</u>	<i>AMC 66.B.305(b)3</i>
<p>The conversion report shall show for each type of qualification referred to in point (a):</p> <ol style="list-style-type: none"> 1. to which aircraft maintenance licence it will be 	As conversions performed on the basis of 66.A.70(d) are aimed to maintain the privileges of the pre-existing national qualification, the limitations introduced on the Part-66

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.B.305(b)</u>	<i>AMC 66.B.305(b)3</i>
<p>converted; and</p> <p>2. which limitations shall be added in accordance with points 66.A.70(c) or (d), as applicable; and</p> <p>3. the conditions to remove the limitations, specifying the module/subjects on which examination is needed to remove the limitations and obtain a full aircraft maintenance licence, or to include an additional (sub-) category. This shall include the modules defined in Appendix III to this Annex (Part-66) not covered by the national qualification.</p>	<p>licence are not linked to possible differences between the scope of the national qualification and the scope of the Part-66 licence qualification. This conversion does not include such comparison.</p> <p>This means that, in order to remove such limitations, full compliance with the conditions of Part-66 needs to be demonstrated.</p>

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

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<u>66.B.310(a)</u>	<i>AMC 66.B.310(a)</i>
<p>For each approved maintenance organisation concerned, the conversion report shall describe the scope of each type of authorisation issued by the maintenance organisation and include a copy of the relevant approved maintenance organisation's procedures for the qualification and the authorisation of certifying staff on which the conversion process is based.</p>	<p>1. Conversion reports prepared on the basis of point 66.A.70(c) should include a comparison between the qualification required for each type of organisation authorisation and the scope of the Part-66 licence qualification, which should be performed on the basis of a detailed analysis of the organisation and Part-66 basic qualification standards. The report should identify where a difference between the two standards exists and where such a difference would lead to a limitation on the Part-66 licence.</p> <p>2. Conversion reports prepared on the basis of point 66.A.70(d), which is limited to aircraft not involved in commercial air transport other than large aircraft, should include the privileges associated with the organisation authorisation. The report should identify which limitations are needed on the Part-66 licence to maintain these privileges.</p>

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<u>66.B.310(b)</u>	<i>GM 66.B.310(b)3</i>
<p>The conversion report shall show for each type of authorisation referred to in point (a):</p> <p>1. to which aircraft maintenance licence it will be converted, and</p> <p>2. which limitations shall be added in accordance with points 66.A.70(c) or (d), as applicable, and</p> <p>3. the conditions to remove the limitations, specifying the</p>	<p>As conversions performed on the basis of 66.A.70(d) are aimed to maintain the privileges of the pre-existing organisation authorisations, the limitations introduced on the Part-66 licence are not linked to possible differences between the qualification required for the organisation authorisation and the Part-66 licence qualification. This conversion does not include such comparison.</p> <p>This means that, in order to remove such limitations, full</p>

Regulation (EC) No 2042/2003 incl. Amendments	ED Decision 2003/19/RM incl. Amendments
<u>66.B.310(b)</u>	<i>GM 66.B.310(b)3</i>
module/subjects on which examination is needed to remove the limitations and obtain a full aircraft maintenance licence, or to include an additional (sub-) category. This shall include the modules defined in Appendix III to this Annex (Part-66) not covered by the national qualification.	compliance with the conditions of Part-66 needs to be demonstrated.

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SUBPART E EXAMINATION CREDITS

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

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66.B.400 General

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66.B.400(a)

The competent authority may only grant credit on the basis of a credit report prepared in accordance with point 66.B.405.

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66.B.400(b)

The credit report shall be either (i) developed by the competent authority or (ii) approved by the competent authority to ensure compliance with this Annex (Part-66).

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66.B.400(c)

Credit reports together with any change of these shall be dated and kept on record by the competent authority in accordance with point 66.B.20.

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66.B.405 Examination credit report

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66.B.405(a)

The credit report shall include a comparison between:

- (i) the modules, sub-modules, subjects and knowledge levels contained in Appendix I to this Annex (Part-66), as applicable; and
- (ii) the syllabus of the technical qualification concerned relevant to the particular category being sought.

This comparison shall state if compliance is demonstrated

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<u>66.B.405(a)</u>	
and contain the justifications for each statement.	

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<u>66.B.405(b)</u>	
Credit 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, without prejudice to bilateral agreements.	

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<u>66.B.405(c)</u>	
No credit can be granted unless there is a statement of compliance against each module and sub-module, stating where, in the technical qualification, the equivalent standard can be found.	

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<u>66.B.405(d)</u>	
The competent authority shall check on a regular basis whether (i) the national qualification standard or (ii) Appendix I to this Annex (Part-66) have changed and assess if changes to the credit report are consequently required. Such changes shall be documented, dated and recorded.	

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66.B.410

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	<i>GM 66.B.410</i>
	In the case of credits expired in accordance with 66.A.25(d) and 66.B.410(b), the new application for credits will lead to a reassessment in accordance with 66.B.405 and 66.B.410 only in those cases where the requirements contained in Appendix I to Part-66 have changed. This may lead to a requirement for further examinations on particular modules/sub-modules/subjects.

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<u>66.B.410(a)</u>	
The competent authority shall notify to the applicant in writing any credits granted together with the reference to the credit report used.	
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<u>66.B.410(b)</u>	
Credits shall expire 10 years after they are granted.	
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<u>66.B.410(c)</u>	
Upon expiration of the credits, the applicant may apply for new credits. The competent authority shall continue the validity of the credits for an additional period of 10 years without further consideration if basic knowledge requirements defined in Appendix I to this Annex (Part-66) have not been changed.	
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SUBPART F CONTINUING OVERSIGHT

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

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

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66.B.500

The competent authority shall suspend, limit or revoke the aircraft maintenance licence where it has identified a safety issue or if it has clear evidence that the person has carried out or been involved in one or more of the following activities:

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

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APPENDICES TO PART-66

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Part-66: Appendix I - Basic Knowledge Requirements

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1. Knowledge levels for Category A, B1, B2, B3 and C Aircraft Maintenance Licence

Basic knowledge for categories A, B1, B2 and B3 are indicated by knowledge levels (1, 2 or 3) against 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.

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2. Modularisation

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

Subject module	A or B1 aeroplane with:		A or B1 helicopter with:		B2	B3
	Turbine engine(s)	Piston engine(s)	Turbine engine(s)	Piston engine(s)	Avionics	Piston-engine non-pressurised aeroplanes 2 000 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					
11B		X				
11C						X
12			X	X		
13					X	
14					X	
15	X		X			
16		X		X		X
17A	X	X				
17B						X

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Module 1. Mathematics

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	Level			
	A	B1	B2	B3
1.1 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, square and cube roots.	1	2	2	2
1.2 Algebra (a) Evaluating simple algebraic expressions, addition, subtraction, multiplication and division, use of brackets, simple algebraic fractions; (b) Linear equations and their solutions; Indices and powers, negative and fractional indices; Binary and other applicable numbering systems; Simultaneous equations and second degree equations with one unknown; Logarithms.	1	2	2	2
1.3 Geometry (a) Simple geometrical constructions; (b) Graphical representation; nature and uses of graphs, graphs of equations/functions; (c) Simple trigonometry; trigonometrical relationships, use of tables and rectangular and polar coordinates.	-	1	1	1
	2	2	2	2
	-	2	2	2

Module 2. Physics

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	Level			
	A	B1	B2	B3
2.1 Matter Nature of matter: the chemical elements, structure of atoms, molecules; Chemical compounds; States: solid, liquid and gaseous; Changes between states.	1	1	1	1
2.2 Mechanics 2.2.1 Statics	1	2	1	1

	Level			
	A	B1	B2	B3
Forces, moments and couples, representation as vectors; Centre of gravity; Elements of theory of stress, strain and elasticity: tension, compression, shear and torsion; Nature and properties of solid, fluid and gas; Pressure and buoyancy in liquids (barometers).				
2.2.2 Kinetics	1	2	1	1
Linear movement: uniform motion in a straight line, motion under constant acceleration (motion under gravity); Rotational movement: uniform circular motion (centrifugal/centripetal forces); Periodic motion: pendular movement; Simple theory of vibration, harmonics and resonance; Velocity ratio, mechanical advantage and efficiency.				
2.2.3 Dynamics				
(a) Mass Force, inertia, work, power, energy (potential, kinetic and total energy), heat, efficiency;	1	2	1	1
(b) Momentum, conservation of momentum; Impulse; Gyroscopic principles; Friction: nature and effects, coefficient of friction (rolling resistance).	1	2	1	1
2.2.4 Fluid dynamics				
(a) Specific gravity and density;	2	2	2	2
(b) Viscosity, fluid resistance, effects of streamlining; Effects of compressibility on fluids; Static, dynamic and total pressure: Bernoulli's Theorem, venturi.	1	2	1	1
2.3 Thermodynamics				
(a) Temperature: thermometers and temperature scales: Celsius, Fahrenheit and Kelvin; Heat definition;	2	2	2	2
(b) Heat capacity, specific heat; Heat transfer: convection, radiation and conduction; Volumetric expansion; First and second law of thermodynamics; Gases: ideal gases laws; specific heat at constant volume and constant pressure, work done by expanding gas;	-	2	2	1

	Level			
	A	B1	B2	B3
<p>Isothermal, adiabatic expansion and compression, engine cycles, constant volume and constant pressure, refrigerators and heat pumps;</p> <p>Latent heats of fusion and evaporation, thermal energy, heat of combustion.</p>				
<p>2.4 Optics (Light)</p> <p>Nature of light; speed of light;</p> <p>Laws of reflection and refraction: reflection at plane surfaces, reflection by spherical mirrors, refraction, lenses;</p> <p>Fibre optics.</p>	-	2	2	-
<p>2.5 Wave Motion and Sound</p> <p>Wave motion: mechanical waves, sinusoidal wave motion, interference phenomena, standing waves;</p> <p>Sound: speed of sound, production of sound, intensity, pitch and quality, Doppler effect.</p>	-	2	2	-

Module 3. Electrical Fundamentals

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	Level			
	A	B1	B2	B3
<p>3.1 Electron Theory</p> <p>Structure and distribution of electrical charges within: atoms, molecules, ions, compounds;</p> <p>Molecular structure of conductors, semiconductors and insulators.</p>	1	1	1	1
<p>3.2 Static Electricity and Conduction</p> <p>Static electricity and distribution of electrostatic charges;</p> <p>Electrostatic laws of attraction and repulsion;</p> <p>Units of charge, Coulomb's Law;</p> <p>Conduction of electricity in solids, liquids, gases and a vacuum.</p>	1	2	2	1
<p>3.3 Electrical Terminology</p> <p>The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.</p>	1	2	2	1
<p>3.4 Generation of Electricity</p> <p>Production of electricity by the following methods: light, heat, friction, pressure,</p>	1	1	1	1

	Level			
	A	B1	B2	B3
chemical action, magnetism and motion.				
3.5 DC Sources of Electricity	1	2	2	2
Construction and basic chemical action of: primary cells, secondary cells, lead acid cells, nickel cadmium cells, other alkaline cells;				
Cells connected in series and parallel;				
Internal resistance and its effect on a battery;				
Construction, materials and operation of thermocouples;				
Operation of photo-cells.				
3.6 DC Circuits	-	2	2	1
Ohms Law, Kirchoff's Voltage and Current Laws;				
Calculations using the above laws to find resistance, voltage and current;				
Significance of the internal resistance of a supply.				
3.7 Resistance/Resistor				
(a) Resistance and affecting factors;	-	2	2	1
Specific resistance;				
Resistor colour code, values and tolerances, preferred values, wattage ratings;				
Resistors in series and parallel;				
Calculation of total resistance using series, parallel and series parallel combinations;				
Operation and use of potentiometers and rheostats;				
Operation of Wheatstone Bridge;				
(b) Positive and negative temperature coefficient conductance;	-	1	1	-
Fixed resistors, stability, tolerance and limitations, methods of construction;				
Variable resistors, thermistors, voltage dependent resistors;				
Construction of potentiometers and rheostats;				
Construction of Wheatstone Bridge.				
3.8 Power	-	2	2	1
Power, work and energy (kinetic and potential);				
Dissipation of power by a resistor;				
Power formula;				
Calculations involving power, work and energy.				
3.9 Capacitance/Capacitor	-	2	2	1
Operation and function of a capacitor;				

	Level			
	A	B1	B2	B3
<p>Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating;</p> <p>Capacitor types, construction and function;</p> <p>Capacitor colour coding;</p> <p>Calculations of capacitance and voltage in series and parallel circuits;</p> <p>Exponential charge and discharge of a capacitor, time constants;</p> <p>Testing of capacitors.</p>				
3.10 Magnetism				
<p>(a) Theory of magnetism;</p> <p>Properties of a magnet;</p> <p>Action of a magnet suspended in the Earth's magnetic field;</p> <p>Magnetisation and demagnetisation;</p> <p>Magnetic shielding;</p> <p>Various types of magnetic material;</p> <p>Electromagnets construction and principles of operation;</p> <p>Hand clasp rules to determine: magnetic field around current carrying conductor;</p>	-	2	2	1
<p>(b) Magnetomotive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents;</p> <p>Precautions for care and storage of magnets.</p>	-	2	2	1
3.11 Inductance/Inductor	-	2	2	1
<p>Faraday's Law;</p> <p>Action of inducing a voltage in a conductor moving in a magnetic field;</p> <p>Induction principles;</p> <p>Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns;</p> <p>Mutual induction;</p> <p>The effect the rate of change of primary current and mutual inductance has on induced voltage;</p> <p>Factors affecting mutual inductance: number of turns in coil, physical size of coil, permeability of coil, position of coils with respect to each other;</p> <p>Lenz's Law and polarity determining rules;</p> <p>Back emf, self induction;</p> <p>Saturation point;</p> <p>Principle uses of inductors.</p>				
3.12 DC Motor/Generator Theory	-	2	2	1

	Level			
	A	B1	B2	B3
<p>Basic motor and generator theory;</p> <p>Construction and purpose of components in DC generator;</p> <p>Operation of, and factors affecting output and direction of current flow in DC generators;</p> <p>Operation of, and factors affecting output power, torque, speed and direction of rotation of DC motors;</p> <p>Series wound, shunt wound and compound motors;</p> <p>Starter Generator construction.</p>				
<p>3.13 AC Theory</p> <p>Sinusoidal waveform: phase, period, frequency, cycle;</p> <p>Instantaneous, average, root mean square, peak, peak to peak current values and calculations of these values, in relation to voltage, current and power;</p> <p>Triangular/Square waves;</p> <p>Single/3 phase principles.</p>	1	2	2	1
<p>3.14 Resistive (R), Capacitive (C) and Inductive (L) Circuits</p> <p>Phase relationship of voltage and current in L, C and R circuits, parallel, series and series parallel;</p> <p>Power dissipation in L, C and R circuits;</p> <p>Impedance, phase angle, power factor and current calculations;</p> <p>True power, apparent power and reactive power calculations.</p>	-	2	2	1
<p>3.15 Transformers</p> <p>Transformer construction principles and operation;</p> <p>Transformer losses and methods for overcoming them;</p> <p>Transformer action under load and no-load conditions;</p> <p>Power transfer, efficiency, polarity markings;</p> <p>Calculation of line and phase voltages and currents;</p> <p>Calculation of power in a three phase system;</p> <p>Primary and Secondary current, voltage, turns ratio, power, efficiency;</p> <p>Auto transformers.</p>	-	2	2	1
<p>3.16 Filters</p> <p>Operation, application and uses of the following filters: low pass, high pass, band pass, band stop.</p>	-	1	1	-
<p>3.17 AC Generators</p> <p>Rotation of loop in a magnetic field and waveform produced;</p> <p>Operation and construction of revolving armature and revolving field type AC</p>	-	2	2	1

	Level			
	A	B1	B2	B3
generators; Single phase, two phase and three phase alternators; Three phase star and delta connections advantages and uses; Permanent Magnet Generators. 3.18 AC Motors Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and polyphase; Methods of speed control and direction of rotation; Methods of producing a rotating field: capacitor, inductor, shaded or split pole.	-	2	2	1

Module 4. Electronic Fundamentals

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	Level			
	A	B1	B2	B3
4.1 Semiconductors 4.1.1 Diodes (a) Diode symbols; Diode characteristics and properties; Diodes in series and parallel; Main characteristics and use of silicon controlled rectifiers (thyristors), light emitting diode, photo conductive diode, varistor, rectifier diodes; Functional testing of diodes. (b) Materials, electron configuration, electrical properties; P and N type materials: effects of impurities on conduction, majority and minority characters; PN junction in a semiconductor, development of a potential across a PN junction in unbiased, forward biased and reverse biased conditions; Diode parameters: peak inverse voltage, maximum forward current, temperature, frequency, leakage current, power dissipation; Operation and function of diodes in the following circuits: clippers, clampers, full and half wave rectifiers, bridge rectifiers, voltage doublers and triplers; Detailed operation and characteristics of the following devices: silicon controlled rectifier (thyristor), light emitting diode, Schottky diode, photo conductive diode, varactor diode, varistor, rectifier diodes, Zener diode. 4.1.2 Transistors	-	2	2	1
	-	-	2	-

	Level			
	A	B1	B2	B3
<p>(a) Transistor symbols; Component description and orientation; Transistor characteristics and properties.</p>	-	1	2	1
<p>(b) Construction and operation of PNP and NPN transistors; Base, collector and emitter configurations; Testing of transistors; Basic appreciation of other transistor types and their uses; Application of transistors: classes of amplifier (A, B, C); Simple circuits including: bias, decoupling, feedback and stabilisation; Multistage circuit principles: cascades, push-pull, oscillators, multivibrators, flip-flop circuits.</p>	-	-	2	-
4.1.3 Integrated Circuits				
<p>(a) Description and operation of logic circuits and linear circuits/operational amplifiers;</p>	-	1	-	1
<p>(b) Description and operation of logic circuits and linear circuits; Introduction to operation and function of an operational amplifier used as: integrator, differentiator, voltage follower, comparator; Operation and amplifier stages connecting methods: resistive capacitive, inductive (transformer), inductive resistive (IR), direct; Advantages and disadvantages of positive and negative feedback.</p>	-	-	2	-
4.2 Printed Circuit Boards				
<p>Description and use of printed circuit boards.</p>	-	1	2	-
4.3 Servomechanism				
<p>(a) Understanding of the following terms: Open and closed loop systems, feedback, follow up, analogue transducers; Principles of operation and use of the following synchro system components/features: resolvers, differential, control and torque, transformers, inductance and capacitance transmitters;</p>	-	1	-	-
<p>(b) Understanding of the following terms: Open and closed loop, follow up, servomechanism, analogue, transducer, null, damping, feedback, deadband; Construction operation and use of the following synchro system components: resolvers, differential, control and torque, E and I transformers, inductance transmitters, capacitance transmitters, synchronous transmitters; Servomechanism defects, reversal of synchro leads, hunting.</p>	-	-	2	-

Module 5. Digital Techniques/Electronic Instrument Systems

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	Level				
	A	B1-1 B1-3	B1-2 B1-4	B2	B3
5.1 Electronic Instrument Systems Typical systems arrangements and cockpit layout of electronic instrument systems.	1	2	2	3	1
5.2 Numbering Systems Numbering systems: binary, octal and hexadecimal; Demonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa.	-	1	-	2	-
5.3 Data Conversion Analogue Data, Digital Data; Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types.	-	1	-	2	-
5.4 Data Buses Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications. Aircraft Network/Ethernet.	-	2	-	2	-
5.5 Logic Circuits (a) Identification of common logic gate symbols, tables and equivalent circuits; Applications used for aircraft systems, schematic diagrams.	-	2	-	2	1
(b) Interpretation of logic diagrams.	-	-	-	2	-
5.6 Basic Computer Structure (a) Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); Computer technology (as applied in aircraft systems).	1	2	-	-	-
(b) Computer related terminology; Operation, layout and interface of the major components in a micro computer including their associated bus systems; Information contained in single and multiaddress instruction words; Memory associated terms; Operation of typical memory devices; Operation, advantages and disadvantages of the various data storage systems.	-	-	-	2	-
5.7 Microprocessors	-	-	-	2	-

	Level				
	A	B1-1 B1-3	B1-2 B1-4	B2	B3
<p>Functions performed and overall operation of a microprocessor;</p> <p>Basic operation of each of the following microprocessor elements: control and processing unit, clock, register, arithmetic logic unit.</p> <p>5.8 Integrated Circuits</p> <p>Operation and use of encoders and decoders;</p> <p>Function of encoder types;</p> <p>Uses of medium, large and very large scale integration.</p> <p>5.9 Multiplexing</p> <p>Operation, application and identification in logic diagrams of multiplexers and demultiplexers.</p> <p>5.10 Fibre Optics</p> <p>Advantages and disadvantages of fibre optic data transmission over electrical wire propagation;</p> <p>Fibre optic data bus;</p> <p>Fibre optic related terms;</p> <p>Terminations;</p> <p>Couplers, control terminals, remote terminals;</p> <p>Application of fibre optics in aircraft systems.</p> <p>5.11 Electronic Displays</p> <p>Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.</p> <p>5.12 Electrostatic Sensitive Devices</p> <p>Special handling of components sensitive to electrostatic discharges;</p> <p>Awareness of risks and possible damage, component and personnel anti-static protection devices.</p> <p>5.13 Software Management Control</p> <p>Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes.</p> <p>5.14 Electromagnetic Environment</p> <p>Influence of the following phenomena on maintenance practices for electronic system: EMC-Electromagnetic Compatibility EMI-Electromagnetic Interference HIRF-High Intensity Radiated Field Lightning/lightning protection.</p> <p>5.15 Typical Electronic/Digital Aircraft Systems</p> <p>General arrangement of typical electronic/digital aircraft systems and associated BITE (Built In Test Equipment) such as:</p> <p>(a) For B1 and B2 only:</p>	-	-	-	2	-
	-	-	-	2	-
	-	1	1	2	-
	-	2	1	2	1
	1	2	2	2	1
	-	2	1	2	1
	-	2	2	2	1
	-	2	2	2	1

	Level				
	A	B1-1 B1-3	B1-2 B1-4	B2	B3
ACARS-ARINC Communication and Addressing and Reporting System EICAS-Engine Indication and Crew Alerting System FBW-Fly-by-Wire FMS-Flight Management System IRS-Inertial Reference System; (b) For B1, B2 and B3: ECAM-Electronic Centralised Aircraft Monitoring EFIS-Electronic Flight Instrument System GPS-Global Positioning System TCAS-Traffic Alert Collision Avoidance System Integrated Modular Avionics Cabin Systems Information Systems.					

Module 6. Materials and Hardware

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	Level			
	A	B1	B2	B3
6.1 Aircraft Materials — Ferrous				
(a) Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloy steels.	1	2	1	2
(b) Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.	-	1	1	1
6.2 Aircraft Materials — Non-Ferrous				
(a) Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials;	1	2	1	2
(b) Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.	-	1	1	1
6.3 Aircraft Materials — Composite and Non-Metallic				
6.3.1 Composite and non-metallic other than wood and fabric				
(a) Characteristics, properties and identification of common composite and	1	2	2	2

	Level			
	A	B1	B2	B3
non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents;				
(b) The detection of defects/deterioration in composite and non-metallic material; Repair of composite and non-metallic material.	1	2	-	2
6.3.2 Wooden structures Construction methods of wooden airframe structures; Characteristics, properties and types of wood and glue used in aeroplanes; Preservation and maintenance of wooden structure; Types of defects in wood material and wooden structures; The detection of defects in wooden structure; Repair of wooden structure.	1	2	-	2
6.3.3 Fabric covering Characteristics, properties and types of fabrics used in aeroplanes; Inspections methods for fabric; Types of defects in fabric; Repair of fabric covering.	1	2	-	2
6.4 Corrosion				
(a) Chemical fundamentals; Formation by, galvanic action process, microbiological, stress;	1	1	1	1
(b) Types of corrosion and their identification; Causes of corrosion; Material types, susceptibility to corrosion.	2	3	2	2
6.5 Fasteners				
6.5.1 Screw threads Screw nomenclature; Thread forms, dimensions and tolerances for standard threads used in aircraft; Measuring screw threads.	2	2	2	2
6.5.2 Bolts, studs and screws Bolt types: specification, identification and marking of aircraft bolts, international standards; Nuts: self locking, anchor, standard types; Machine screws: aircraft specifications; Studs: types and uses, insertion and removal;	2	2	2	2

	Level			
	A	B1	B2	B3
Self tapping screws, dowels.				
6.5.3 <i>Locking devices</i> Tab and spring washers, locking plates, split pins, pal-nuts, wire locking, quick release fasteners, keys, circlips, cotter pins.	2	2	2	2
6.5.4 <i>Aircraft rivets</i> Types of solid and blind rivets: specifications and identification, heat treatment.	1	2	1	2
6.6 Pipes and Unions				
(a) Identification of, and types of rigid and flexible pipes and their connectors used in aircraft;	2	2	2	2
(b) Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.	2	2	1	2
6.7 Springs Types of springs, materials, characteristics and applications.	-	2	1	1
6.8 Bearings Purpose of bearings, loads, material, construction; Types of bearings and their application.	1	2	2	1
6.9 Transmissions Gear types and their application; Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns; Belts and pulleys, chains and sprockets.	1	2	2	1
6.10 Control Cables Types of cables; End fittings, turnbuckles and compensation devices; Pulleys and cable system components; Bowden cables; Aircraft flexible control systems.	1	2	1	2
6.11 Electrical Cables and Connectors Cable types, construction and characteristics; High tension and co-axial cables; Crimping; Connector types, pins, plugs, sockets, insulators, current and voltage rating, coupling, identification codes.	1	2	2	2

Module 7A. Maintenance Practices

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

	Level		
	A	B1	B2
7.1 Safety Precautions-Aircraft and Workshop Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals. Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.	3	3	3
7.2 Workshop Practices Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship; Calibration of tools and equipment, calibration standards.	3	3	3
7.3 Tools Common hand tool types; Common power tool types; Operation and use of precision measuring tools; Lubrication equipment and methods. Operation, function and use of electrical general test equipment.	3	3	3
7.4 Avionic General Test Equipment Operation, function and use of avionic general test equipment.	-	2	3
7.5 Engineering Drawings, Diagrams and Standards Drawing types and diagrams, their symbols, dimensions, tolerances and projections; Identifying title block information; Microfilm, microfiche and computerised presentations; Specification 100 of the Air Transport Association (ATA) of America; Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL; Wiring diagrams and schematic diagrams.	1	2	2
7.6 Fits and Clearances Drill sizes for bolt holes, classes of fits; Common system of fits and clearances; Schedule of fits and clearances for aircraft and engines; Limits for bow, twist and wear; Standard methods for checking shafts, bearings and other parts.	1	2	1

	Level		
	A	B1	B2
7.7 Electrical Wiring Interconnection System (EWIS) Continuity, insulation and bonding techniques and testing; Use of crimp tools: hand and hydraulic operated; Testing of crimp joints; Connector pin removal and insertion; Co-axial cables: testing and installation precautions; Identification of wire types, their inspection criteria and damage tolerance. Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding; EWIS installations, inspection, repair, maintenance and cleanliness standards.	1	3	3
7.8 Riveting Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints.	1	2	-
7.9 Pipes and Hoses Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes.	1	2	-
7.10 Springs Inspection and testing of springs.	1	2	-
7.11 Bearings Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.	1	2	-
7.12 Transmissions Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.	1	2	-
7.13 Control Cables Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.	1	2	-
7.14 Material handling 7.14.1 Sheet Metal	-	2	-

	Level		
	A	B1	B2
Marking out and calculation of bend allowance; Sheet metal working, including bending and forming; Inspection of sheet metal work.			
7.14.2 Composite and non-metallic Bonding practices; Environmental conditions; Inspection methods.	-	2	-
7.15 Welding, Brazing, Soldering and Bonding			
(a) Soldering methods; inspection of soldered joints.	-	2	2
(b) Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.	-	2	-
7.16 Aircraft Weight and Balance			
(a) Centre of Gravity/Balance limits calculation: use of relevant documents;	-	2	2
(b) Preparation of aircraft for weighing; Aircraft weighing.	-	2	-
7.17 Aircraft Handling and Storage Aircraft taxiing/towing and associated safety precautions; Aircraft jacking, chocking, securing and associated safety precautions; Aircraft storage methods; Refuelling/defuelling procedures; De-icing/anti-icing procedures; Electrical, hydraulic and pneumatic ground supplies. Effects of environmental conditions on aircraft handling and operation.	2	2	2
7.18 Disassembly, Inspection, Repair and Assembly Techniques			
(a) Types of defects and visual inspection techniques; Corrosion removal, assessment and re-protection;	2	3	3
(b) General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion control programmes;	-	2	-
(c) Non-destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods;	-	2	1
(d) Disassembly and re-assembly techniques;	2	2	2
(e) Trouble shooting techniques.	-	2	2

	Level		
	A	B1	B2
7.19 Abnormal Events			
(a) Inspections following lightning strikes and HIRF penetration;	2	2	2
(b) Inspections following abnormal events such as heavy landings and flight through turbulence.	2	2	-
7.20 Maintenance Procedures	1	2	2
Maintenance planning;			
Modification procedures;			
Stores procedures;			
Certification/release procedures;			
Interface with aircraft operation;			
Maintenance Inspection/Quality Control/Quality Assurance;			
Additional maintenance procedures;			
Control of life limited components.			

Module 7B. Maintenance Practices

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

	Level
	B3
7.1 Safety Precautions-Aircraft and Workshop	3
Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals.	
Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.	
7.2 Workshop Practices	3
Care of tools, control of tools, use of workshop materials;	
Dimensions, allowances and tolerances, standards of workmanship;	
Calibration of tools and equipment, calibration standards.	
7.3 Tools	3
Common hand tool types;	
Common power tool types;	
Operation and use of precision measuring tools;	
Lubrication equipment and methods;	

	Level
	B3
Operation, function and use of electrical general test equipment.	
7.4 Avionic General Test Equipment	-
Operation, function and use of avionic general test equipment.	
7.5 Engineering Drawings, Diagrams and Standards	2
Drawing types and diagrams, their symbols, dimensions, tolerances and projections;	
Identifying title block information;	
Microfilm, microfiche and computerised presentations;	
Specification 100 of the Air Transport Association (ATA) of America;	
Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL;	
Wiring diagrams and schematic diagrams.	
7.6 Fits and Clearances	2
Drill sizes for bolt holes, classes of fits;	
Common system of fits and clearances;	
Schedule of fits and clearances for aircraft and engines;	
Limits for bow, twist and wear;	
Standard methods for checking shafts, bearings and other parts.	
7.7 Electrical Cables and Connectors	2
Continuity, insulation and bonding techniques and testing;	
Use of crimp tools: hand and hydraulic operated;	
Testing of crimp joints;	
Connector pin removal and insertion;	
Co-axial cables: testing and installation precautions;	
Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding.	
7.8 Riveting	2
Riveted joints, rivet spacing and pitch;	
Tools used for riveting and dimpling;	
Inspection of riveted joints.	
7.9 Pipes and Hoses	2
Bending and belling/flaring aircraft pipes;	
Inspection and testing of aircraft pipes and hoses;	
Installation and clamping of pipes.	
7.10 Springs	1
Inspection and testing of springs.	
7.11 Bearings	2

	Level
	B3
Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.	
7.12 Transmissions	2
Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.	
7.13 Control Cables	2
Swaging of end fittings; Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.	
7.14 Material handling	
7.14.1 Sheet Metal	2
Marking out and calculation of bend allowance; Sheet metal working, including bending and forming; Inspection of sheet metal work.	
7.14.2 Composite and non-metallic	2
Bonding practices; Environmental conditions; Inspection methods.	
7.15 Welding, Brazing, Soldering and Bonding	
(a) Soldering methods; inspection of soldered joints;	2
(b) Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.	2
7.16 Aircraft Weight and Balance	
(a) Centre of Gravity/Balance limits calculation: use of relevant documents;	2
(b) Preparation of aircraft for weighing; Aircraft weighing.	2
7.17 Aircraft Handling and Storage	2
Aircraft taxiing/towing and associated safety precautions; Aircraft jacking, chocking, securing and associated safety precautions; Aircraft storage methods;	

	Level
	B3
Refuelling/defuelling procedures; De-icing/anti-icing procedures; Electrical, hydraulic and pneumatic ground supplies; Effects of environmental conditions on aircraft handling and operation.	
7.18 Disassembly, Inspection, Repair and Assembly Techniques	
(a) Types of defects and visual inspection techniques; Corrosion removal, assessment and reprotection;	3
(b) General repair methods, Structural Repair Manual; Ageing, fatigue and corrosion control programmes;	2
(c) Non-destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods;	2
(d) Disassembly and re-assembly techniques;	2
(e) Trouble shooting techniques.	2
7.19 Abnormal Events	
(a) Inspections following lightning strikes and HIRF penetration.	2
(b) Inspections following abnormal events such as heavy landings and flight through turbulence.	2
7.20 Maintenance Procedures	2
Maintenance planning;	
Modification procedures;	
Stores procedures;	
Certification/release procedures;	
Interface with aircraft operation;	
Maintenance Inspection/Quality Control/Quality Assurance;	
Additional maintenance procedures;	
Control of life limited components.	

Module 8. Basic Aerodynamics

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	Level			
	A	B1	B2	B3
8.1 Physics of the Atmosphere International Standard Atmosphere (ISA), application to aerodynamics.	1	2	2	1

	Level			
	A	B1	B2	B3
8.2 Aerodynamics Airflow around a body; Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation; The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, centre of pressure, angle of attack, wash in and wash out, fineness ratio, wing shape and aspect ratio; Thrust, Weight, Aerodynamic Resultant; Generation of Lift and Drag: Angle of Attack, Lift coefficient, Drag coefficient, polar curve, stall; Aerofoil contamination including ice, snow, frost.	1	2	2	1
8.3 Theory of Flight Relationship between lift, weight, thrust and drag; Glide ratio; Steady state flights, performance; Theory of the turn; Influence of load factor: stall, flight envelope and structural limitations; Lift augmentation.	1	2	2	1
8.4 Flight Stability and Dynamics Longitudinal, lateral and directional stability (active and passive).	1	2	2	1

Module 9A. Human Factors

[◀ \(Back to Table of Contents\)](#)

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

	Level		
	A	B1	B2
9.1 General The need to take human factors into account; Incidents attributable to human factors/human error; "Murphy's" law.	1	2	2
9.2 Human Performance and Limitations Vision; Hearing; Information processing;	1	2	2

	Level		
	A	B1	B2
Attention and perception; Memory; Claustrophobia and physical access.			
9.3 Social Psychology Responsibility: individual and group; Motivation and de-motivation; Peer pressure; "Culture" issues; Team working; Management, supervision and leadership.	1	1	1
9.4 Factors Affecting Performance Fitness/health; Stress: domestic and work related; Time pressure and deadlines; Workload: overload and underload; Sleep and fatigue, shiftwork; Alcohol, medication, drug abuse.	2	2	2
9.5 Physical Environment Noise and fumes; Illumination; Climate and temperature; Motion and vibration; Working environment.	1	1	1
9.6 Tasks Physical work; Repetitive tasks; Visual inspection; Complex systems.	1	1	1
9.7 Communication Within and between teams; Work logging and recording; Keeping up to date, currency; Dissemination of information.	2	2	2
9.8 Human Error Error models and theories;	1	2	2

	Level		
	A	B1	B2
Types of error in maintenance tasks; Implications of errors (i.e. accidents); Avoiding and managing errors.			
9.9 Hazards in the Workplace Recognising and avoiding hazards; Dealing with emergencies.	1	2	2

Module 9B. Human Factors

[◀ \(Back to Table of Contents\)](#)

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

	Level
	B3
9.1 General The need to take human factors into account; Incidents attributable to human factors/human error; "Murphy's" law.	2
9.2 Human Performance and Limitations Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access.	2
9.3 Social Psychology Responsibility: individual and group; Motivation and de-motivation; Peer pressure; "Culture" issues; Team working; Management, supervision and leadership.	1
9.4 Factors Affecting Performance Fitness/health;	2

	Level
	B3
<p>Stress: domestic and work related; Time pressure and deadlines; Workload: overload and underload; Sleep and fatigue, shiftwork; Alcohol, medication, drug abuse.</p>	
<p>9.5 Physical Environment</p> <p>Noise and fumes; Illumination; Climate and temperature; Motion and vibration; Working environment.</p>	1
<p>9.6 Tasks</p> <p>Physical work; Repetitive tasks; Visual inspection; Complex systems.</p>	1
<p>9.7 Communication</p> <p>Within and between teams; Work logging and recording; Keeping up to date, currency; Dissemination of information.</p>	2
<p>9.8 Human Error</p> <p>Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e. accidents); Avoiding and managing errors.</p>	2
<p>9.9 Hazards in the Workplace</p> <p>Recognising and avoiding hazards; Dealing with emergencies.</p>	2

Module 10. Aviation Legislation

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	Level			
	A	B1	B2	B3
10.1 Regulatory Framework Role of the International Civil Aviation Organisation; Role of the European Commission; Role of EASA; Role of the Member States and National Aviation Authorities; Regulation (EC) No 216/2008 and its implementing rules Regulations (EC) No 1702/2003 and (EC) No 2042/2003; Relationship between the various Annexes (Parts) such as Part-21, Part-M, Part-145, Part-66, Part-147 and EU-OPS.	1	1	1	1
10.2 Certifying Staff — Maintenance Detailed understanding of Part-66.	2	2	2	2
10.3 Approved Maintenance Organisations Detailed understanding of Part-145 and Part-M Subpart F.	2	2	2	21
10.4 Air operations General understanding of EU-OPS. Air Operators Certificates; Operator's responsibilities, in particular regarding continuing airworthiness and maintenance; Aircraft Maintenance Programme; MEL//CDL; Documents to be carried on board; Aircraft placarding (markings).	1	1	1	1
10.5 Certification of aircraft, parts and appliances				
(a) General General understanding of Part-21 and EASA certification specifications CS-23, 25, 27, 29.	-	1	1	1
(b) Documents Certificate of Airworthiness; restricted certificates of airworthiness and permit to fly; Certificate of Registration; Noise Certificate; Weight Schedule; Radio Station Licence and Approval.	-	2	2	2

	Level			
	A	B1	B2	B3
10.6 Continuing airworthiness Detailed understanding of Part-21 provisions related to continuing airworthiness. Detailed understanding of Part-M.	2	2	2	2
10.7 Applicable National and International Requirements for (if not superseded by EU requirements).				
(a) Maintenance Programmes, Maintenance checks and inspections; Airworthiness Directives; Service Bulletins, manufacturers service information; Modifications and repairs; Maintenance documentation: maintenance manuals, structural repair manual, illustrated parts catalogue, etc.; <i>Only for A to B2 licences:</i> Master Minimum Equipment Lists, Minimum Equipment List, Dispatch Deviation Lists;	1	2	2	2
(b) Continuing airworthiness; Minimum equipment requirements — Test flights; <i>Only for B1 and B2 licences:</i> ETOPS, maintenance and dispatch requirements; All Weather Operations, Category 2/3 operations.	-	1	1	1

Module 11A. Turbine Aeroplane Aerodynamics, Structures and Systems

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	Level	
	A1	B1.1
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;	1	2

	Level	
	A1	B1.1
<p>Effects of wing fences, saw tooth leading edges;</p> <p>Boundary layer control using, vortex generators, stall wedges or leading edge devices;</p> <p>Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels.</p>		
<p>11.1.2. High Speed Flight</p> <p>Speed of sound, subsonic flight, transonic flight, supersonic flight;</p> <p>Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule;</p> <p>Factors affecting airflow in engine intakes of high speed aircraft;</p> <p>Effects of sweepback on critical Mach number.</p>	1	2
<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; 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;</p> <p>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>	1	2

	Level	
	A1	B1.1
Landing gear, pylon, control surface and high lift/drag attachments.		
11.3.3 <i>Stabilisers (ATA 55)</i> Construction; Control surface attachment.	1	2
11.3.4 <i>Flight Control Surfaces (ATA 55/57)</i> Construction and attachment; Balancing — mass and aerodynamic.	1	2
11.3.5 <i>Nacelles/Pylons (ATA 54)</i> Nacelles/Pylons: — Construction, — Firewalls, — Engine mounts.	1	2
11.4 Air Conditioning and Cabin Pressurisation (ATA 21)		
11.4.1 <i>Air supply</i> Sources of air supply including engine bleed, APU and ground cart.	1	2
11.4.2 <i>Air Conditioning</i> Air conditioning systems; Air cycle and vapour cycle machines; Distribution systems; Flow, temperature and humidity control system.	1	3
11.4.3 <i>Pressurisation</i> Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers.	1	3
11.4.4 <i>Safety and warning devices</i> Protection and warning devices.	1	3
11.5 Instruments/Avionic Systems		
11.5.1 <i>Instrument Systems (ATA 31)</i> 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;	1	2

	Level	
	A1	B1.1
Other aircraft system indication.		
11.5.2 Avionic Systems	1	1
Fundamentals of system lay-outs and operation of:		
— Auto Flight (ATA 22),		
— Communications (ATA 23),		
— Navigation Systems (ATA 34).		
11.6 Electrical Power (ATA 24)	1	3
Batteries Installation and Operation;		
DC power generation;		
AC power generation;		
Emergency power generation;		
Voltage regulation;		
Power distribution;		
Inverters, transformers, rectifiers;		
Circuit protection;		
External/Ground power.		
11.7 Equipment and Furnishings (ATA 25)		
(a) Emergency equipment requirements;	2	2
Seats, harnesses and belts.		
(b) Cabin lay-out;	1	1
Equipment lay-out;		
Cabin Furnishing installation;		
Cabin entertainment equipment;		
Galley installation;		
Cargo handling and retention equipment;		
Airstairs.		
11.8 Fire Protection (ATA 26)	1	3
(a) Fire and smoke detection and warning systems;		
Fire extinguishing systems;		
System tests;		
(b) Portable fire extinguisher.	1	1
11.9 Flight Controls (ATA 27)	1	3
Primary controls: aileron, elevator, rudder, spoiler;		
Trim control;		

	Level	
	A1	B1.1
Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic, electrical, fly-by-wire; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust lock systems; Balancing and rigging; Stall protection/warning system.		
11.10 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) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Filters; Pressure Control; Power distribution; Indication and warning systems; Interface with other systems.	1	3
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;	2	3

	Level	
	A1	B1.1
<p>Extension and retraction systems: normal and emergency;</p> <p>Indications and warning;</p> <p>Wheels, brakes, antiskid and autobraking;</p> <p>Tyres;</p> <p>Steering;</p> <p>Air-ground sensing.</p>		
<p>11.14 Lights (ATA 33)</p> <p>External: navigation, anti collision, landing, taxiing, ice;</p> <p>Internal: cabin, cockpit, cargo;</p> <p>Emergency.</p>	2	3
<p>11.15 Oxygen (ATA 35)</p> <p>System lay-out: cockpit, cabin;</p> <p>Sources, storage, charging and distribution;</p> <p>Supply regulation;</p> <p>Indications and warnings.</p>	1	3
<p>11.16 Pneumatic/Vacuum (ATA 36)</p> <p>System lay-out;</p> <p>Sources: engine/APU, compressors, reservoirs, ground supply;</p> <p>Pressure control;</p> <p>Distribution;</p> <p>Indications and warnings;</p> <p>Interfaces with other systems.</p>	1	3
<p>11.17 Water/Waste (ATA 38)</p> <p>Water system lay-out, supply, distribution, servicing and draining;</p> <p>Toilet system lay-out, flushing and servicing;</p> <p>Corrosion aspects.</p>	2	3
<p>11.18 On Board Maintenance Systems (ATA 45)</p> <p>Central maintenance computers;</p> <p>Data loading system;</p> <p>Electronic library system;</p> <p>Printing;</p> <p>Structure monitoring (damage tolerance monitoring).</p>	1	2
<p>11.19 Integrated Modular Avionics (ATA42)</p> <p>Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others:</p> <p>Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation</p>	1	2

	Level	
	A1	B1.1
<p>Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc.</p> <p>Core System; Network Components.</p> <p>11.20 Cabin Systems (ATA44)</p> <p>The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Flight Attendant Panels.</p> <p>The Cabin Network Service typically consists on a server, typically interfacing with, among others, the following systems:</p> <ul style="list-style-type: none"> — Data/Radio Communication, In-Flight Entertainment System. <p>The Cabin Network Service 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>Cabin Core System;</p> <p>In-flight Entertainment System;</p> <p>External Communication System;</p> <p>Cabin Mass Memory System;</p> <p>Cabin Monitoring System;</p> <p>Miscellaneous Cabin System.</p> <p>11.21 Information Systems (ATA46)</p> <p>The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display.</p> <p>Typical examples include Air Traffic and Information Management Systems and Network Server Systems</p> <p>Aircraft General Information System;</p> <p>Flight Deck Information System;</p> <p>Maintenance Information System;</p> <p>Passenger Cabin Information System;</p> <p>Miscellaneous Information System.</p>	1	2
	1	2

Module 11B. Piston Aeroplane Aerodynamics, Structures and Systems

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

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

	Level	
	A2	B1.2
11.1 Theory of Flight		
11.1.1. Aeroplane Aerodynamics and Flight Controls	1	2
Operation and effect of:		
— roll control: ailerons and spoilers,		
— pitch control: elevators, stabilators, variable incidence stabilisers and canards,		
— yaw control, rudder limiters;		
Control using elevons, ruddervators;		
High lift devices, slots, slats, flaps, flaperons;		
Drag inducing devices, spoilers, lift dumpers, speed brakes;		
Effects of wing fences, saw tooth leading edges;		
Boundary layer control using, vortex generators, stall wedges or leading edge devices;		
Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels.		
11.1.2. High Speed Flight — N/A	-	-
11.2 Airframe Structures — General Concepts		
(a) Airworthiness requirements for structural strength;	2	2
Structural classification, primary, secondary and tertiary;		
Fail safe, safe life, damage tolerance concepts;		
Zonal and station identification systems;		
Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue;		
Drains and ventilation provisions;		
System installation provisions;		
Lightning strike protection provision;		
Aircraft bonding.		
(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;	1	2
Structure assembly techniques: riveting, bolting, bonding;		
Methods of surface protection, such as chromating, anodising, painting;		
Surface cleaning;		
Airframe symmetry: methods of alignment and symmetry checks.		
11.3 Airframe Structures — Aeroplanes		

	Level	
	A2	B1.2
11.3.1 Fuselage (ATA 52/53/56) Construction and pressurisation sealing; Wing, tail-plane, pylon and undercarriage attachments; Seat installation; Doors and emergency exits: construction and operation; Windows and windscreen attachment.	1	2
11.3.2 Wings (ATA 57) Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments.	1	2
11.3.3 Stabilisers (ATA 55) Construction; Control surface attachment.	1	2
11.3.4 Flight Control Surfaces (ATA 55/57) Construction and attachment; Balancing — mass and aerodynamic.	1	2
11.3.5 Nacelles/Pylons (ATA 54) Nacelles/Pylons: — Construction, — Firewalls, — Engine mounts.	1	2
11.4 Air Conditioning and Cabin Pressurisation (ATA 21) Pressurisation and air conditioning systems; Cabin pressure controllers, protection and warning devices; Heating systems.	1	3
11.5 Instruments/Avionic Systems		
11.5.1 Instrument Systems (ATA 31) Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems; Glass cockpit; Other aircraft system indication.	1	2

	Level	
	A2	B1.2
11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (ATA 22), — Communications (ATA 23), — Navigation Systems (ATA 34).	1	1
11.6 Electrical Power (ATA 24) Batteries Installation and Operation; DC power generation; Voltage regulation; Power distribution; Circuit protection; Inverters, transformers.	1	3
11.7 Equipment and Furnishings (ATA 25) (a) Emergency equipment requirements; Seats, harnesses and belts; (b) Cabin lay-out; Equipment lay-out; Cabin Furnishing installation; Cabin entertainment equipment; Galley installation; Cargo handling and retention equipment; Airstairs.	2 1	2 1
11.8 Fire Protection (ATA 26) (a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests; (b) Portable fire extinguisher.	1 1	3 3
11.9 Flight Controls (ATA 27) Primary controls: aileron, elevator, rudder; Trim tabs; High lift devices; System operation: manual; Gust locks; Balancing and rigging;	1	3

	Level	
	A2	B1.2
Stall warning system.		
11.10 Fuel Systems (ATA 28)	1	3
System lay-out;		
Fuel tanks;		
Supply systems;		
Cross-feed and transfer;		
Indications and warnings;		
Refuelling and defuelling.		
11.11 Hydraulic Power (ATA 29)	1	3
System lay-out;		
Hydraulic fluids;		
Hydraulic reservoirs and accumulators;		
Pressure generation: electric, mechanical;		
Filters;		
Pressure Control;		
Power distribution;		
Indication and warning systems.		
11.12 Ice and Rain Protection (ATA 30)	1	3
Ice formation, classification and detection;		
De-icing systems: electrical, hot air, pneumatic and chemical;		
Probe and drain heating;		
Wiper systems.		
11.13 Landing Gear (ATA 32)	2	3
Construction, shock absorbing;		
Extension and retraction systems: normal and emergency;		
Indications and warning;		
Wheels, brakes, antiskid and autobraking;		
Tyres;		
Steering;		
Air-ground sensing.		
11.14 Lights (ATA 33)	2	3
External: navigation, anti collision, landing, taxiing, ice;		
Internal: cabin, cockpit, cargo;		
Emergency.		
11.15 Oxygen (ATA 35)	1	3

	Level	
	A2	B1.2
System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.		
11.16 Pneumatic/Vacuum (ATA 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	1	3
11.17 Water/Waste (ATA 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing; Corrosion aspects.	2	3

Module 11C. Piston, Aeroplane Aerodynamics, Structures and Systems

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

	Level
	B3
<p>11.1 Theory of Flight</p> <p><i>Aeroplane Aerodynamics and Flight Controls</i></p> <p>Operation and effect of: — roll control: ailerons, — pitch control: elevators, stabilators, variable incidence stabilisers and canards, — yaw control, rudder limiters;</p> <p>Control using elevons, ruddervators;</p> <p>High lift devices, slots, slats, flaps, flaperons;</p> <p>Drag inducing devices, lift dumpers, speed brakes;</p> <p>Effects of wing fences, saw tooth leading edges;</p> <p>Boundary layer control using, vortex generators, stall wedges or leading edge devices;</p> <p>Operation and effect of trim tabs, balance and anti-balance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels.</p> <p>11.2 Airframe Structures — General Concepts</p>	1

	Level
	B3
<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
<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;</p> <p>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>	2
11.3 Airframe Structures — Aeroplanes	
<p>11.3.1 <i>Fuselage (ATA 52/53/56)</i></p> <p>Construction;</p> <p>Wing, tail-plane, pylon and undercarriage attachments;</p> <p>Seat installation;</p> <p>Doors and emergency exits: construction and operation;</p> <p>Window and windscreen attachment.</p>	1
<p>11.3.2 <i>Wings (ATA 57)</i></p> <p>Construction;</p> <p>Fuel storage;</p> <p>Landing gear, pylon, control surface and high lift/drag attachments.</p>	1
<p>11.3.3 <i>Stabilisers (ATA 55)</i></p> <p>Construction;</p> <p>Control surface attachment.</p>	1
<p>11.3.4 <i>Flight Control Surfaces (ATA 55/57)</i></p> <p>Construction and attachment;</p> <p>Balancing — mass and aerodynamic.</p>	1
<p>11.3.5 <i>Nacelles/Pylons (ATA 54)</i></p> <p>Nacelles/Pylons:</p>	1

	Level
	B3
<ul style="list-style-type: none"> — Construction, — Firewalls, — Engine mounts. 	
11.4 Air Conditioning (ATA 21) Heating and ventilation systems.	1
11.5 Instruments/Avionic Systems	
11.5.1 Instrument Systems (ATA 31) Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems; Glass cockpit; Other aircraft system indication.	1
11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: <ul style="list-style-type: none"> — Auto Flight (ATA 22), — Communications (ATA 23), — Navigation Systems (ATA 34). 	1
11.6 Electrical Power (ATA 24) Batteries Installation and Operation; DC power generation; Voltage regulation; Power distribution; Circuit protection; Inverters, transformers.	2
11.7 Equipment and Furnishings (ATA 25) Emergency equipment requirements; Seats, harnesses and belts.	2
11.8 Fire Protection (ATA 26) Portable fire extinguisher.	2
11.9 Flight Controls (ATA 27) Primary controls: aileron, elevator, rudder; Trim tabs; High lift devices;	3

	Level
	B3
<p>System operation: manual; Gust locks; Balancing and rigging; Stall warning system.</p>	
<p>11.10 Fuel Systems (ATA 28)</p> <p>System lay-out; Fuel tanks; Supply systems; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling.</p>	2
<p>11.11 Hydraulic Power (ATA 29)</p> <p>System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical; Filters; Pressure Control; Power distribution; Indication and warning systems.</p>	2
<p>11.12 Ice and Rain Protection (ATA 30)</p> <p>Ice formation, classification and detection; De-icing systems: electrical, hot air, pneumatic and chemical; Probe and drain heating; Wiper systems.</p>	1
<p>11.13 Landing Gear (ATA 32)</p> <p>Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering.</p>	2
<p>11.14 Lights (ATA 33)</p> <p>External: navigation, anti collision, landing, taxiing, ice; Internal: cabin, cockpit, cargo;</p>	2

	Level
	B3
Emergency.	
11.15 Oxygen (ATA 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings.	2
11.16 Pneumatic/Vacuum (ATA 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure and vacuum pumps Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	2

Module 12. Helicopter Aerodynamics, Structures and Systems

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	Level	
	A3 A4	B1.3 B1.4
12.1 Theory of Flight — Rotary Wing Aerodynamics Terminology; Effects of gyroscopic precession; Torque reaction and directional control; Dissymmetry of lift, Blade tip stall; Translating tendency and its correction; Coriolis effect and compensation; Vortex ring state, power settling, overpitching; Auto-rotation; Ground effect.	1	2
12.2 Flight Control Systems Cyclic control; Collective control;	2	3

	Level	
	A3 A4	B1.3 B1.4
Swashplate; Yaw control: Anti-Torque Control, Tail rotor, bleed air; Main Rotor Head: Design and Operation features; Blade Dampers: Function and construction; Rotor Blades: Main and tail rotor blade construction and attachment; Trim control, fixed and adjustable stabilisers; System operation: manual, hydraulic, electrical and fly-by-wire; Artificial feel; Balancing and rigging.		
12.3 Blade Tracking and Vibration Analysis Rotor alignment; Main and tail rotor tracking; Static and dynamic balancing; Vibration types, vibration reduction methods; Ground resonance.	1	3
12.4 Transmission Gear boxes, main and tail rotors; Clutches, free wheel units and rotor brake; Tail rotor drive shafts, flexible couplings, bearings, vibration dampers and bearing hangers.	1	3
12.5 Airframe Structures (a) Airworthiness requirements for structural strength; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision; (b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning and anti-corrosive protection. Pylon, stabiliser and undercarriage attachments; Seat installation; Doors: construction, mechanisms, operation and safety devices; Windows and windscreen construction; Fuel storage; Firewalls; Engine mounts; Structure assembly techniques: riveting, bolting, bonding;	2 1	2 2

12.9 Equipment and Furnishings (ATA 25)

	Level	
	A3 A4	B1.3 B1.4
(a) Emergency equipment requirements; Seats, harnesses and belts; Lifting systems;	2	2
(b) Emergency flotation systems; Cabin lay-out, cargo retention; Equipment lay-out; Cabin Furnishing Installation.	1	1
12.10 Fire Protection (ATA 26) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests.	1	3
12.11 Fuel Systems (ATA 28) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling.	1	3
12.12 Hydraulic Power (ATA 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Filters; Pressure Control; Power distribution; Indication and warning systems; Interface with other systems.	1	3
12.13 Ice and Rain Protection (ATA 30) Ice formation, classification and detection; Anti-icing and De-icing systems: electrical, hot air and chemical; Rain repellent and removal;	1	3

	Level	
	A3 A4	B1.3 B1.4
Probe and drain heating; Wiper system.		
12.14 Landing Gear (ATA 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, Tyres, brakes; Steering; Air-ground sensing; Skids, floats.	2	3
12.15 Lights (ATA 33) External: navigation, landing, taxiing, ice; Internal: cabin, cockpit, cargo; Emergency.	2	3
12.16 Pneumatic/Vacuum (ATA 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	1	3
12.17 Integrated Modular Avionics (ATA42) Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc. Core System; Network Components.	1	2
12.18 On Board Maintenance Systems (ATA45) Central maintenance computers; Data loading system; Electronic library system; Printing;	1	2

	Level	
	A3 A4	B1.3 B1.4
Structure monitoring (damage tolerance monitoring).		
<p>12.19 Information Systems (ATA46)</p> <p>The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display.</p> <p>Typical examples include Air Traffic and Information Management Systems and Network Server Systems.</p> <p>Aircraft General Information System;</p> <p>Flight Deck Information System;</p> <p>Maintenance Information System;</p> <p>Passenger Cabin Information System;</p> <p>Miscellaneous Information System.</p>	1	2

Module 13.Aircraft Aerodynamics, Structures and Systems

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

	Level
	B2
(a) Fundamentals of structural systems;	1
(b) Zonal and station identification systems; Electrical bonding; Lightning strike protection provision.	2
13.3 Autoflight (ATA 22)	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;	
Autothrottle systems;	
Automatic Landing Systems: principles and categories, modes of operation, approach, glideslope, land, go-around, system monitors and failure conditions.	
13.4 Communication/Navigation (ATA 23/34)	3
Fundamentals of radio wave propagation, antennas, transmission lines, communication, receiver and transmitter;	
Working principles of following systems:	
— Very High Frequency (VHF) communication,	
— High Frequency (HF) communication,	
— Audio,	
— Emergency Locator Transmitters,	
— Cockpit Voice Recorder,	
— Very High Frequency omnidirectional range (VOR),	
— Automatic Direction Finding (ADF),	
— Instrument Landing System (ILS),	
— Microwave Landing System (MLS),	
— Flight Director systems, Distance Measuring Equipment (DME),	
— Very Low Frequency and hyperbolic navigation (VLF/Omega),	
— Doppler navigation,	
— Area navigation, RNAV systems,	
— Flight Management Systems,	
— Global Positioning System (GPS), Global Navigation Satellite Systems (GNSS),	
— Inertial Navigation System,	
— Air Traffic Control transponder, secondary surveillance radar,	
— Traffic Alert and Collision Avoidance System (TCAS),	
— Weather avoidance radar,	

	Level
	B2
<ul style="list-style-type: none"> — Radio altimeter, — ARINC communication and reporting. 	
13.5 Electrical Power (ATA 24) Batteries Installation and Operation; DC power generation; AC power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection; External/Ground power.	3
13.6 Equipment and Furnishings (ATA 25) Electronic emergency equipment requirements; Cabin entertainment equipment.	3
13.7 Flight Controls (ATA 27) (a) Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks. Stall protection systems; (b) System operation: electrical, fly-by-wire.	2 3
13.8 Instruments (ATA 31) Classification; Atmosphere; Terminology; Pressure measuring devices and systems; Pitot static systems; Altimeters; Vertical speed indicators; Airspeed indicators; Machmeters; Altitude reporting/alerting systems; Air data computers; Instrument pneumatic systems; Direct reading pressure and temperature gauges; Temperature indicating systems; Fuel quantity indicating systems;	3

	Level
	B2
<p>Gyroscopic principles;</p> <p>Artificial horizons;</p> <p>Slip indicators;</p> <p>Directional gyros;</p> <p>Ground Proximity Warning Systems;</p> <p>Compass systems;</p> <p>Flight Data Recording systems;</p> <p>Electronic Flight Instrument Systems;</p> <p>Instrument warning systems including master warning systems and centralised warning panels;</p> <p>Stall warning systems and angle of attack indicating systems;</p> <p>Vibration measurement and indication;</p> <p>Glass cockpit.</p>	
<p>13.9 Lights (ATA 33)</p> <p>External: navigation, landing, taxiing, ice;</p> <p>Internal: cabin, cockpit, cargo;</p> <p>Emergency.</p>	3
<p>13.10 On Board Maintenance Systems (ATA 45)</p> <p>Central maintenance computers;</p> <p>Data loading system;</p> <p>Electronic library system;</p> <p>Printing;</p> <p>Structure monitoring (damage tolerance monitoring).</p>	3
<p>13.11 Air Conditioning and Cabin Pressurisation (ATA21)</p>	
<p>13.11.1. Air supply</p> <p>Sources of air supply including engine bleed, APU and ground cart;</p>	2
<p>13.11.2. Air Conditioning</p> <p>Air conditioning systems;</p> <p>Air cycle and vapour cycle machines;</p> <p>Distribution systems;</p> <p>Flow, temperature and humidity control system.</p>	2 3 1 3
<p>13.11.3. Pressurisation</p> <p>Pressurisation systems;</p> <p>Control and indication including control and safety valves;</p> <p>Cabin pressure controllers.</p>	3
<p>13.11.4. Safety and warning devices</p>	3

	Level
	B2
Protection and warning devices.	
13.12 Fire Protection (ATA 26)	
(a) Fire and smoke detection and warning systems;	3
Fire extinguishing systems;	
System tests;	
(b) Portable fire extinguisher.	1
13.13 Fuel Systems (ATA 28)	
System lay-out;	1
Fuel tanks;	1
Supply systems;	1
Dumping, venting and draining;	1
Cross-feed and transfer;	2
Indications and warnings;	3
Refuelling and defuelling;	2
Longitudinal balance fuel systems.	3
13.14 Hydraulic Power (ATA 29)	
System lay-out;	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 Ice and Rain Protection (ATA 30)	
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 Landing Gear (ATA 32)	
Construction, shock absorbing;	1

	Level
	B2
Extension and retraction systems: normal and emergency;	3
Indications and warnings;	3
Wheels, brakes, antiskid and autobraking;	3
Tyres;	1
Steering;	3
Air-ground sensing.	3
13.17 Oxygen (ATA 35)	
System lay-out: cockpit, cabin;	3
Sources, storage, charging and distribution;	3
Supply regulation;	3
Indications and warnings.	3
13.18 Pneumatic/Vacuum (ATA 36)	
System lay-out;	2
Sources: engine/APU, compressors, reservoirs, ground supply;	2
Pressure control;	3
Distribution;	1
Indications and warnings;	3
Interfaces with other systems.	3
13.19 Water/Waste (ATA 38)	2
Water system lay-out, supply, distribution, servicing and draining;	
Toilet system lay-out, flushing and servicing.	
13.20 Integrated Modular Avionics (ATA42)	3
Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others: Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc.;	
Core System;	
Network Components.	
13.21 Cabin Systems (ATA44)	3
The units and components which furnish a means of entertaining the passengers and providing communication within the aircraft (Cabin Intercommunication Data System) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data, music and video transmissions.	
The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Flight Attendant Panels.	
The Cabin Network Service typically consists on a server, typically interfacing with, among others, the following	

	Level
	B2
<p>systems:</p> <ul style="list-style-type: none"> — Data/Radio Communication, In-Flight Entertainment System. <p>The Cabin Network Service 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>Cabin Core System;</p> <p>In-flight Entertainment System;</p> <p>External Communication System;</p> <p>Cabin Mass Memory System;</p> <p>Cabin Monitoring System;</p> <p>Miscellaneous Cabin System.</p> <p>13.22 Information Systems (ATA46)</p> <p>The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display.</p> <p>Typical examples include Air Traffic and Information Management Systems and Network Server Systems.</p> <p>Aircraft General Information System;</p> <p>Flight Deck Information System;</p> <p>Maintenance Information System;</p> <p>Passenger Cabin Information System;</p> <p>Miscellaneous Information System.</p>	3

Module 14. Propulsion

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

	Level
	B2
<p>systems;</p> <p>Oil pressure and temperature;</p> <p>Fuel pressure, temperature and flow;</p> <p>Manifold pressure;</p> <p>Engine torque;</p> <p>Propeller speed.</p> <p>14.3 Starting and Ignition Systems</p> <p>Operation of engine start systems and components;</p> <p>Ignition systems and components;</p> <p>Maintenance safety requirements.</p>	2

Module 15. Gas Turbine Engine

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	Level	
	A	B1
<p>15.1 Fundamentals</p> <p>Potential energy, kinetic energy, Newton's laws of motion, Brayton cycle;</p> <p>The relationship between force, work, power, energy, velocity, acceleration;</p> <p>Constructional arrangement and operation of turbojet, turbofan, turboshaft, turboprop.</p>	1	2
<p>15.2 Engine Performance</p> <p>Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust, thrust horsepower, equivalent shaft horsepower, specific fuel consumption;</p> <p>Engine efficiencies;</p> <p>By-pass ratio and engine pressure ratio;</p> <p>Pressure, temperature and velocity of the gas flow;</p> <p>Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating, limitations.</p>	-	2
<p>15.3 Inlet</p> <p>Compressor inlet ducts</p> <p>Effects of various inlet configurations;</p> <p>Ice protection.</p>	2	2
<p>15.4 Compressors</p> <p>Axial and centrifugal types;</p> <p>Constructional features and operating principles and applications;</p> <p>Fan balancing;</p>	1	2

	Level	
	A	B1
Operation:		
Causes and effects of compressor stall and surge;		
Methods of air flow control: bleed valves, variable inlet guide vanes, variable stator vanes, rotating stator blades;		
Compressor ratio.		
15.5 Combustion Section	1	2
Constructional features and principles of operation.		
15.6 Turbine Section	2	2
Operation and characteristics of different turbine blade types;		
Blade to disk attachment;		
Nozzle guide vanes;		
Causes and effects of turbine blade stress and creep.		
15.7 Exhaust	1	2
Constructional features and principles of operation;		
Convergent, divergent and variable area nozzles;		
Engine noise reduction;		
Thrust reversers.		
15.8 Bearings and Seals	-	2
Constructional features and principles of operation.		
15.9 Lubricants and Fuels	1	2
Properties and specifications;		
Fuel additives;		
Safety precautions.		
15.10 Lubrication Systems	1	2
System operation/lay-out and components.		
15.11 Fuel Systems	1	2
Operation of engine control and fuel metering systems including electronic engine control (FADEC);		
Systems lay-out and components.		
15.12 Air Systems	1	2
Operation of engine air distribution and anti-ice control systems, including internal cooling, sealing and external air services.		
15.13 Starting and Ignition Systems	1	2
Operation of engine start systems and components;		
Ignition systems and components;		
Maintenance safety requirements.		

	Level	
	A	B1
15.14 Engine Indication Systems Exhaust Gas Temperature/Interstage Turbine Temperature; Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems; Oil pressure and temperature; Fuel pressure and flow; Engine speed; Vibration measurement and indication; Torque; Power.	1	2
15.15 Power Augmentation Systems Operation and applications; Water injection, water methanol; Afterburner systems.	-	1
15.16 Turbo-prop Engines Gas coupled/free turbine and gear coupled turbines; Reduction gears; Integrated engine and propeller controls; Overspeed safety devices.	1	2
15.17 Turbo-shaft Engines Arrangements, drive systems, reduction gearing, couplings, control systems.	1	2
15.18 Auxiliary Power Units (APUs) Purpose, operation, protective systems.	1	2
15.19 Powerplant Installation Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.	1	2
15.20 Fire Protection Systems Operation of detection and extinguishing systems.	1	2
15.21 Engine Monitoring and Ground Operation Procedures for starting and ground run-up; Interpretation of engine power output and parameters; Trend (including oil analysis, vibration and boroscope) monitoring; Inspection of engine and components to criteria, tolerances and data specified by engine manufacturer; Compressor washing/cleaning;	1	3

	Level	
	A	B1
Foreign Object Damage.		
15.22 Engine Storage and Preservation	-	2
Preservation and depreservation for the engine and accessories/systems.		

Module 16. Piston Engine

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	Level		
	A	B1	B3
16.1 Fundamentals	1	2	2
Mechanical, thermal and volumetric efficiencies;			
Operating principles — 2 stroke, 4 stroke, Otto and Diesel;			
Piston displacement and compression ratio;			
Engine configuration and firing order.			
16.2 Engine Performance	1	2	2
Power calculation and measurement;			
Factors affecting engine power;			
Mixtures/leaning, pre-ignition.			
16.3 Engine Construction	1	2	2
Crank case, crank shaft, cam shafts, sumps;			
Accessory gearbox;			
Cylinder and piston assemblies;			
Connecting rods, inlet and exhaust manifolds;			
Valve mechanisms;			
Propeller reduction gearboxes.			
16.4 Engine Fuel Systems			
16.4.1 Carburettors	1	2	2
Types, construction and principles of operation;			
Icing and heating.			
16.4.2 Fuel injection systems	1	2	2
Types, construction and principles of operation.			
16.4.3 Electronic engine control	1	2	2
Operation of engine control and fuel metering systems including electronic engine control (FADEC);			

	Level		
	A	B1	B3
Systems lay-out and components.			
16.5 Starting and Ignition Systems	1	2	2
Starting systems, pre-heat systems;			
Magneto types, construction and principles of operation;			
Ignition harnesses, spark plugs;			
Low and high tension systems.			
16.6 Induction, Exhaust and Cooling Systems	1	2	2
Construction and operation of: induction systems including alternate air systems;			
Exhaust systems, engine cooling systems — air and liquid.			
16.7 Supercharging/Turbocharging	1	2	2
Principles and purpose of supercharging and its effects on engine parameters;			
Construction and operation of supercharging/turbocharging systems;			
System terminology;			
Control systems;			
System protection.			
16.8 Lubricants and Fuels	1	2	2
Properties and specifications;			
Fuel additives;			
Safety precautions.			
16.9 Lubrication Systems	1	2	2
System operation/lay-out and components.			
16.10 Engine Indication Systems	1	2	2
Engine speed;			
Cylinder head temperature;			
Coolant temperature;			
Oil pressure and temperature;			
Exhaust Gas Temperature;			
Fuel pressure and flow;			
Manifold pressure.			
16.11 Powerplant Installation	1	2	2
Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.			
16.12 Engine Monitoring and Ground Operation	1	3	2
Procedures for starting and ground run-up;			

	Level		
	A	B1	B3
<p>Interpretation of engine power output and parameters;</p> <p>Inspection of engine and components: criteria, tolerances, and data specified by engine manufacturer.</p> <p>16.13 Engine Storage and Preservation</p> <p>Preservation and depreservation for the engine and accessories/systems.</p>	-	2	1

Module 17A.Propeller

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

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

	Level	
	A	B1
17.6 Propeller Maintenance Static and dynamic balancing; Blade tracking; Assessment of blade damage, erosion, corrosion, impact damage, delamination; Propeller treatment/repair schemes; Propeller engine running.	1	3
17.7 Propeller Storage and Preservation Propeller preservation and depreservation.	1	2

Module 17B.Propeller

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

	Level
	B3
17.1 Fundamentals Blade element theory; High/low blade angle, reverse angle, angle of attack, rotational speed; Propeller slip; Aerodynamic, centrifugal, and thrust forces; Torque; Relative airflow on blade angle of attack; Vibration and resonance.	2
17.2 Propeller Construction Construction methods and material used in wooden, composite and metal propellers; Blade station, blade face, blade shank, blade back and hub assembly; Fixed pitch, controllable pitch, constant speeding propeller; Propeller/spinner installation.	2
17.3 Propeller Pitch Control Speed control and pitch change methods, mechanical and electrical/electronic; Feathering and reverse pitch; Overspeed protection.	2
17.4 Propeller Synchronising	2

	Level
	B3
Synchronising and synchrophasing equipment.	
17.5 Propeller Ice Protection	2
Fluid and electrical de-icing equipment.	
17.6 Propeller Maintenance	2
Static and dynamic balancing;	
Blade tracking;	
Assessment of blade damage, erosion, corrosion, impact damage, delamination;	
Propeller treatment/repair schemes;	
Propeller engine running.	
17.7 Propeller Storage and Preservation	2
Propeller preservation and depreservation	

Part-66: Appendix II - Basic Examination Standard

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1. General

- 1.1. All basic examinations shall be carried out using the multi-choice question format and essay questions as specified below. The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All of the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length. In numerical questions, the incorrect answers shall correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they shall not be mere random numbers.
- 1.2. Each multi-choice question shall have three alternative answers of which only one shall be the correct answer and the candidate shall be allowed a time per module which is based upon a nominal average of 75 seconds per question.
- 1.3. Each essay question requires the preparation of a written answer and the candidate shall be allowed 20 minutes to answer each such question.
- 1.4. Suitable essay questions shall be drafted and evaluated using the knowledge syllabus in Appendix I Modules 7A, 7B, 9A, 9B and 10.
- 1.5. Each question will have a model answer drafted for it, which will also include any known alternative answers that may be relevant for other subdivisions.
- 1.6. The model answer will also be broken down into a list of the important points known as Key Points.
- 1.7. The pass mark for each module and sub-module multi-choice part of the examination is 75 %.
- 1.8. The pass mark for each essay question is 75 % in that the candidates answer shall contain 75 % of the required key points addressed by the question and no significant error related to any required key point.
- 1.9. If either the multi-choice part only or the essay part only is failed, then it is only necessary to retake the multi- choice or essay part, as appropriate.
- 1.10. Penalty marking systems shall not be used to determine whether a candidate has passed.
- 1.11. A failed module may not be retaken for at least 90 days following the date of the failed module examination, except in the case of a maintenance training organisation approved in accordance with Annex IV (Part-147) which conducts a course of retraining tailored to the failed subjects in the particular module when the failed module may be retaken after 30 days.
- 1.12. The time periods required by point 66.A.25 apply to each individual module examination, with the exception of those module examinations which were passed as part of another category licence, where the licence has already been issued.
- 1.13. The maximum number of consecutive attempts for each module is three. Further sets of three attempts are allowed with a 1 year waiting period between sets.

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

2. Number of questions per module

2.1. MODULE 1 — MATHEMATICS

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

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

Category B2: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

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

2.2. MODULE 2 — PHYSICS

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

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

Category B2: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

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

2.3. MODULE 3 — ELECTRICAL FUNDAMENTALS

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

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

Category B2: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

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

2.4. MODULE 4 — ELECTRONIC FUNDAMENTALS

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

Category B2: 40 multi-choice and 0 essay questions. Time allowed 50 minutes.

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

2.5. MODULE 5 — DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

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

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

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

Category B2: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

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

2.6. MODULE 6 — MATERIALS AND HARDWARE

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

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

Category B2: 60 multi-choice and 0 essay questions. Time allowed 75 minutes.

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

2.7. MODULE 7A — MAINTENANCE PRACTICES

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

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

Category B2: 60 multi-choice and 2 essay questions. Time allowed 75 minutes plus 40 minutes.

MODULE 7B — MAINTENANCE PRACTICES

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

2.8. MODULE 8 — BASIC AERODYNAMICS

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

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

Category B2: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

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

2.9. MODULE 9A — HUMAN FACTORS

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

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

Category B2: 20 multi-choice and 1 essay question. Time allowed 25 minutes plus 20 minutes.

MODULE 9B — HUMAN FACTORS

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

2.10. MODULE 10 — AVIATION LEGISLATION

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

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

Category B2: 40 multi-choice and 1 essay question. Time allowed 50 minutes plus 20 minutes.

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

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

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

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

MODULE 11B — PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

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

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

MODULE 11C — PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

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

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

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

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

2.13. MODULE 13 — AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

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

2.14. MODULE 14 — PROPULSION

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

2.15. MODULE 15 — GAS TURBINE ENGINE

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

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

2.16. MODULE 16 — PISTON ENGINE

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

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

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

2.17. MODULE 17A — PROPELLER

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

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

MODULE 17B — PROPELLER

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

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Part-66: Appendix III - Aircraft Type Training and Examination Standard – On the Job Training

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1. General

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

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

- (i) Shall be conducted by a maintenance training organisation appropriately approved in accordance with Annex IV (Part-147) or, when conducted by other organisations, as directly approved by the competent authority.
- (ii) Shall comply with the standard described in paragraph 3.1 and 4 of this Appendix III, except as permitted by the differences training described below.
- (iii) In the case of a category C person qualified by holding an academic degree as specified in point 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the category B1 or B2 level.
- (iv) Shall have been started and completed within the 3 years preceding the application for a type rating endorsement.

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

- (i) Shall be conducted by a maintenance training organisation appropriately approved in accordance with Annex IV (Part-147) or, when conducted by other organisations, as directly approved by the competent authority.
- (ii) Shall comply with the standard described in paragraph 3.2 and 4 of this Appendix III, except as permitted by the differences training described below.
- (iii) Shall include a representative cross section of maintenance activities relevant to the aircraft type.
- (iv) Shall include demonstrations using equipment, components, simulators, other training devices or aircraft.
- (v) Shall have been started and completed within the 3 years preceding the application for a type rating endorsement.

(c) Differences training

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

2. Aircraft type training levels

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

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

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

- (a) provide a simple description of the whole subject, using common words and examples, using typical terms and identify safety precautions related to the airframe, its systems and powerplant;
- (b) identify aircraft manuals, maintenance practices important to the airframe, its systems and powerplant;

- (c) define the general layout of the aircraft's major systems;
- (d) define the general layout and characteristics of the powerplant;
- (e) identify special tooling and test equipment used with the aircraft.
- *Level 2: Basic system overview of controls, indicators, principal components, including their location and purpose, servicing and minor troubleshooting. General knowledge of the theoretical and practical aspects of the subject.*

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

- (a) understand the theoretical fundamentals; apply knowledge in a practical manner using detailed procedures;
- (b) recall the safety precautions to be observed when working on or near the aircraft, powerplant and systems;
- (c) describe systems and aircraft handling particularly access, power availability and sources;
- (d) identify the locations of the principal components;
- (e) explain the normal functioning of each major system, including terminology and nomenclature;
- (f) perform the procedures for servicing associated with the aircraft for the following systems: Fuel, Power Plants, Hydraulics, Landing Gear, Water/Waste, and Oxygen;
- (g) demonstrate proficiency in use of crew reports and on-board reporting systems (minor troubleshooting) and determine aircraft airworthiness per the MEL/CDL;
- (h) demonstrate the use, interpretation and application of appropriate documentation including instructions for continued airworthiness, maintenance manual, illustrated parts catalogue, etc.
- *Level 3: Detailed description, operation, component location, removal/installation and bite and troubleshooting procedures to maintenance manual level.*

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

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

3. Aircraft type training standard

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

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
<i>Aeroplanes with a maximum take-off mass above 30 000 kg:</i>	
B1.1	150
B1.2	120
B2	100
C	30
<i>Aeroplanes with a maximum take-off mass equal or less than 30 000 kg and above 5 700 kg:</i>	
B1.1	120
B1.2	100
B2	100
C	25
<i>Aeroplanes with a maximum take-off mass of 5 700 kg and below (*)</i>	
B1.1	120
B1.2	100
B2	100
C	25
<i>Helicopters (**)</i>	
B1.3	120
B1.4	100
B2	100
C	25
(*) For non-pressurised piston engine aeroplanes below 2 000 kg MTOM the minimum duration can be reduced by 50 %.	
(**) For helicopters in group 2 (as defined in point 66.A.42) the minimum duration can be reduced by 30 %.	

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

These hours apply only to theoretical courses for complete aircraft/engine combinations according to the type rating as defined by the Agency.

(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 competent authority 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 competent authority 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.

<div> <div>Level</div> <div>Chapters</div> </div>		Aeroplane turbine		Aeroplane piston		Helicopters turbine		Helicopters piston		Avionics
		B1	C	B1	C	B1	C	B1	C	B2
Licence category		B1	C	B1	C	B1	C	B1	C	B2
Introduction module:										
05	Time limits/maintenance checks	1	1	1	1	1	1	1	1	1
06	Dimensions/Areas (MTOM, etc.)	1	1	1	1	1	1	1	1	1
07	Lifting and Shoring	1	1	1	1	1	1	1	1	1
08	Levelling and Weighing	1	1	1	1	1	1	1	1	1
09	Towing and Taxiing	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
11	Placards and Markings	1	1	1	1	1	1	1	1	1
12	Servicing	1	1	1	1	1	1	1	1	1
20	Standard practices – only type particular	1	1	1	1	1	1	1	1	1
Helicopters										
18	Vibration and Noise Analysis (Blade tracking)	-	-	-	-	3	1	3	1	-
60	Standard Practices Rotor	-	-	-	-	3	1	3	1	-

<div> <div>Level</div> <div>Chapters</div> </div>		Aeroplane turbine		Aeroplane piston		Helicopters turbine		Helicopters piston		Avionics
		B1	C	B1	C	B1	C	B1	C	B2
Licence category										
62	Rotors	-	-	-	-	3	1	3	1	1
62A	Rotors – Monitoring and indicating	-	-	-	-	3	1	3	1	3
63	Rotor Drives	-	-	-	-	3	1	3	1	1
63A	Rotor Drives – Monitoring and indicating	-	-	-	-	3	1	3	1	3
64	Tail Rotor	-	-	-	-	3	1	3	1	1
64A	Tail Rotor – Monitoring and indicating	-	-	-	-	3	1	3	1	3
65	Tail Rotor Drive	-	-	-	-	3	1	3	1	1
65A	Tail Rotor Drive – Monitoring and indicating	-	-	-	-	3	1	3	1	3
66	Folding Blades/Pylon	-	-	-	-	3	1	3	1	-
67	Rotors Flight Control	-	-	-	-	3	1	3	1	-
53	Airframe Structure (Helicopter)	-	-	-	-	3	1	3	1	-
25	Emergency Flotation Equipment	-	-	-	-	3	1	3	1	1
Airframe structures										
51	Standard practices and structures (damage classification, assessment and repair)	3	1	3	1	-	-	-	-	1
53	Fuselage	3	1	3	1	-	-	-	-	1
54	Nacelles/Pylon	3	1	3	1	-	-	-	-	1
55	Stabilisers	3	1	3	1	-	-	-	-	1
56	Windows	3	1	3	1	-	-	-	-	1
57	Wings	3	1	3	1	-	-	-	-	1
27A	Flight Control Surfaces (All)	3	1	3	1	-	-	-	-	1
52	Doors	3	1	3	1	-	-	-	-	1
Zonal and Station Identification System		1	1	1	1	1	1	1	1	1
Airframe systems										
21	Air Conditioning	3	1	3	1	3	1	3	1	3
21A	Air Supply	3	1	3	1	1	3	3	1	2
21B	Pressurisation	3	1	3	1	3	1	3	1	3
21C	Safety and Warning Devices	3	1	3	1	3	1	3	1	3
22	Autoflight	2	1	2	1	2	1	2	1	3
23	Communications	2	1	2	1	2	1	2	1	3
24	Electrical Power	3	1	3	1	3	1	3	1	3
25	Equipment and Furnishing	3	1	3	1	3	1	3	1	1
25A	Electronic Equipment including emergency equipment	1	1	1	1	1	1	1	1	3

Chapters \ Level		Aeroplane turbine		Aeroplane piston		Helicopters turbine		Helicopters piston		Avionics
Licence category		B1	C	B1	C	B1	C	B1	C	B2
26	Fire Protection	3	1	3	1	3	1	3	1	3
27	Flight Controls	3	1	3	1	3	1	3	1	2
27A	Sys. Operation: Electrical/Fly-by-Wire	3	1	-	-	-	-	-	-	
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	2
29A	Hydraulic Power – Monitoring and indicating	3	1	3	1	3	1	3	1	3
30	Ice and Rain Protection	3	1	3	1	3	1	3	1	3
31	Indicating/Recording Systems	3	1	3	1	3	1	3	1	3
31A	Instrument Systems	3	1	3	1	3	1	1	3	3
32	Landing Gear	3	1	3	1	3	1	3	1	2
32A	Landing Gear — Monitoring and indicating	3	1	3	1	3	1	3	1	3
33	Lights	3	1	3	1	3	1	3	1	3
34	Navigation	2	1	2	1	2	1	2	1	3
35	Oxygen	3	1	3	1	-	-	-	-	2
36	Pneumatic	3	1	3	1	3	1	3	1	2
36	Pneumatic — Monitoring and indicating	3	1	3	1	3	1	3	1	3
37	Vacuum	3	1	3	1	3	1	3	1	2
38	Water/Waste	3	1	3	1	-	-	-	-	2
41	Water Ballast	3	1	3	1	-	-	-	-	1
42	Integrated modular avionics	2	1	2	1	2	1	2	1	3
44	Cabin Systems	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
46	Information Systems	2	1	2	1	2	1	2	1	3
50	Cargo and Accessory Compartments	3	1	3	1	3	1	3	1	1
Turbine Engine										
70	Standard Practices – Engines,	3	1	-	-	3	1	-	-	1

Level Chapters		Aeroplane turbine		Aeroplane piston		Helicopters turbine		Helicopters piston		Avionics
Licence category		B1	C	B1	C	B1	C	B1	C	B2
70A	constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems)	3	1	-	-	3	1	-	-	1
70B	Engine Performance	3	1	-	-	3	1	-	-	1
71	Powerplant	3	1	-	-	3	1	-	-	1
72	Engine Turbine/Turbo Prop/Ducted Fan/Unducted fan	3	1	-	-	3	1	-	-	1
73	Engine Fuel and Control	3	1	-	-	3	1	-	-	1
75	Air	3	1	-	-	3	1	-	-	1
76	Engine controls	3	1	-	-	3	1	-	-	1
78	Exhaust	3	1	-	-	3	1	-	-	1
79	Oil	3	1	-	-	3	1	-	-	1
80	Starting	3	1	-	-	3	1	-	-	1
82	Water Injections	3	1	-	-	3	1	-	-	1
83	Accessory Gear Boxes	3	1	-	-	3	1	-	-	1
84	Propulsion Augmentation	3	1	-	-	3	1	-	-	1
73A	FADEC	3	1	-	-	3	1	-	-	3
74	Ignition	3	1	-	-	3	1	-	-	3
77	Engine Indicating Systems	3	1	-	-	3	1	-	-	3
49	Auxiliary Power Units (APUs)	3	1	-	-	-	-	-	-	2
Piston Engine										
70	Standard Practices – Engines,	-	-	3	1	-	-	3	1	1
70A	Constructional arrangement and operation (Installation, Carburettors, Fuel injection systems, Induction, Exhaust and Cooling Systems, Supercharging/Turbocharging, Lubrication Systems).	-	-	3	1	-	-	3	1	1
70B	Engine Performance	-	-	3	1	-	-	3	1	1
71	Powerplant	-	-	3	1	-	-	3	1	1
73	Engine Fuel and Control	-	-	3	1	-	-	3	1	1
76	Engine controls	-	-	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

Chapters \ Level		Aeroplane turbine		Aeroplane piston		Helicopters turbine		Helicopters piston		Avionics
		B1	C	B1	C	B1	C	B1	C	B2
82	Water Injections	-	-	3	1	-	-	3	1	1
83	Accessory Gear Boxes	-	-	3	1	-	-	3	1	1
84	Propulsion Augmentation	-	-	3	1	-	-	3	1	1
73A	FADEC	-	-	3	1	-	-	3	1	3
74	Ignition	-	-	3	1	-	-	3	1	3
77	Engine Indication Systems	-	-	3	1	-	-	3	1	3
Propellers										
60A	Standard Practices – Propeller	3	1	3	1	-	-	-	-	1
61	Propellers/Propulsion	3	1	3	1	-	-	-	-	1
61A	Propeller	3	1	3	1	-	-	-	-	-
61B	Propeller	3	1	3	1	-	-	-	-	-
61C	Propeller	3	1	3	1	-	-	-	-	1
61D	Propeller	2	1	2	1	-	-	-	-	3
61E	Propeller	3	1	3	1	-	-	-	-	-
61F	Propeller	3	1	3	1	-	-	-	-	1

- (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 competent authority approving the training course.

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: TroubleShooting.

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:												
18	Vibration and Noise Analysis (Blade tracking)	X/-	-	-	-	-	X	-	-	-	-	-
60	Standard Practices Rotor — only type specific	X/X	-	X	-	-	-	-	X	-	-	-
62	Rotors	X/-	-	X	X	-	X	-	-	-	-	-
62A	Rotors — Monitoring and indicating	X/X	X	X	X	X	X	-	-	X	-	X
63	Rotor Drives	X/-	X	-	-	-	X	-	-	-	-	-
63A	Rotor Drives — Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
64	Tail Rotor	X/-	-	X	-	-	X	-	-	-	-	-
64A	Tail rotor -Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
65	Tail Rotor Drive	X/-	X	-	-	-	X	-	-	-	-	-

Chapters	B1/B2	B1					B2				
	LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
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) Note: covered under Airframe structures											
25 Emergency Flotation Equipment	X/X	X	X	X	X	X	X	X	-	-	-
Airframe structures											
51 Standard Practices and Structures (damage classification, assessment and repair)											
53 Fuselage	X/-	-	-	-	-	X	-	-	-	-	-
54 Nacelles/Pylons	X/-	-	-	-	-	-	-	-	-	-	-
55 Stabilisers	X/-	-	-	-	-	-	-	-	-	-	-
56 Windows	X/-	-	-	-	-	X	-	-	-	-	-
57 Wings	X/-	-	-	-	-	-	-	-	-	-	-
27A Flight Control Surfaces	X/-	-	-	-	-	X	-	-	-	-	-
52 Doors	X/-	X	X	-	-	-	-	X	-	-	-
Airframe Systems											
21 Air Conditioning	X/X	X	X	-	X	X	X	X	-	X	X
21A Air Supply	X/X	X	-	-	-	-	X	-	-	-	-
21B Pressurisation	X/X	X	-	-	X	X	X	-	-	X	X
21C Safety and warning Devices	X/X	-	X	-	-	-	-	X	-	-	-
22 Autoflight	X/X	-	-	-	X	-	X	X	X	X	X
23 Communications	X/X	-	X	-	X	-	X	X	X	X	X
24 Electrical Power	X/X	X	X	X	X	X	X	X	X	X	X
25 Equipment and Furnishings	X/X	X	X	X	-	-	X	X	X	-	-
25A Electronic Equipment including emergency equipment	X/X	X	X	X	-	-	X	X	X	-	-

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

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

Chapters	B1/B2	B1					B2				
	LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems)	X/X	-	-	-	-	-	-	-	-	-	-
70B Engine Performance	-	-	-	-	-	X	-	-	-	-	-
71 Power Plant	X/-	X	X	-	-	-	-	X	-	-	-
73 Engine Fuel and Control	X/X	X	-	-	-	-	-	-	-	-	-
73A FADEC System	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

4. Type training examination and assessment standard

4.1. Theoretical element examination standard

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

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

The competent authority of the Member State will assess the number and the level of the questions when approving the course.

- (g) The minimum examination pass mark is 75 %. When the type training examination is split in several examinations, each examination shall be passed with at least a 75 % mark. In order to be possible to achieve exactly a 75 % pass mark, the number of questions in the examination shall be a multiple of 4.
- (h) Penalty marking (negative points for failed questions) is not to be used.
- (i) End of module phase examinations cannot be used as part of the final examination unless they contain the correct number and level of questions required.

(*) For the purpose of this point 4, a "chapter" means each one of the rows preceded by a number in the table contained in point 3.1(e).

4.2. Practical element assessment standard

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

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

5. Type examination standard

Type examination shall be conducted by training organisations appropriately approved under Part-147 or by the competent authority.

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

- (a) Oral examination questions shall be open.
- (b) Written examination questions shall be essay type or multi-choice questions.
- (c) Practical assessment shall determine a person's competence to perform a task.

- (d) Examinations shall be on a sample of chapters (**) drawn from paragraph 3 type training/examination syllabus, at the indicated level.
- (e) The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All of the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length.
- (f) In numerical questions, the incorrect answers shall correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they shall not be mere random numbers.
- (g) The examination shall ensure that the following objectives are met:
 - 1. Properly discuss with confidence the aircraft and its systems.
 - 2. Ensure safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example troubleshooting, repairs, adjustments, replacements, rigging and functional checks such as engine run, etc., if required.
 - 3. Correctly use all technical literature and documentation for the aircraft.
 - 4. Correctly use specialist/special tooling and test equipment, perform removal and replacement of components and modules unique to type, including any on-wing maintenance activity
- (h) The following conditions apply to the examination:
 - 1. The maximum number of consecutive attempts is three. Further sets of three attempts are allowed with a 1 year waiting period between sets. A waiting period of 30 days is required after the first failed attempt within one set, and a waiting period of 60 days is required after the second failed attempt.

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

(**) For the purpose of this point 5, a "chapter" means each one of the rows preceded by a number in the tables contained in points 3.1(e) and 3.2(b).

6. On the Job Training

On the Job Training (OJT) shall be approved by the competent authority who has issued the licence.

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

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

(a) Objective:

The objective of OJT is to gain the required competence and experience in performing safe maintenance.

(b) Content:

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

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

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

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

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

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

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AMC to Section 1 of Appendix III to Part-66 "Aircraft Type Training and Examination Standard, On-the-Job Training"

1. Aircraft type training may be subdivided in airframe and/or powerplant and/or avionics/electrical systems type training courses:
 - Airframe type training course means a type training course including all relevant aircraft structure and electrical and mechanical systems excluding the powerplant.
 - Powerplant type training course means a type training course on the bare engine, including the build-up to a quick engine change unit.
 - The interface of the engine/airframe systems should be addressed by either airframe or powerplant type training course. In some cases, such as for general aviation, it may be more appropriate to cover the interface during the airframe course due to the large variety of aircraft that can have the same engine type installed.
 - Avionics/electrical systems type training course means type training on avionics and electrical systems covered by but not necessarily limited to ATA (Air Transport Association) Chapters 22, 23, 24, 25, 27, 31, 33, 34, 42, 44, 45, 46, 73 and 77 or equivalent.
2. Practical training may be performed either following or integrated with the theoretical elements. However, it should not be performed before theoretical training.
3. The content of the theoretical and practical training should:
 - address the different parts of the aircraft which are representative of the structure, the systems/components installed and the cabin; and
 - include training on the use of technical manuals, maintenance procedures and the interface with the operation of the aircraft.

Therefore, it should be based on the following elements:

- Type design including relevant type design variants, new technology and techniques;
- Feedback from in-service difficulties, occurrence reporting, etc.;
- Significant applicable airworthiness directives and service bulletins;
- Known human factor issues associated with the particular aircraft type;
- Use of common and specific documentation, (when applicable, such as MMEL, AMM, MPD, TSM, SRM, WD, AFM, tool handbook), philosophy of the troubleshooting, etc.;
- Knowledge of the maintenance on-board reporting systems and ETOPS maintenance conditions, when applicable;
- Use of special tooling and test equipment and specific maintenance practises including critical safety items and safety precautions;
- Significant and critical tasks/aspects from the MMEL, CDL, Fuel Tank Safety (FTS), airworthiness limitation items (ALI) including Critical Design Configuration Control Limitations (CDCCL), CMR and all ICA documentation such as MRB, MPD, SRM, AMM, etc., when applicable.
- Maintenance actions and procedures to be followed as a consequence of specific certification requirements, such as, but not limited to, RVSM (Reduced Vertical Separation Minimum) and NVIS (Night Vision Imaging Systems);
- Knowledge of relevant inspections and limitations as applicable to the effects of environmental factors or operational procedures such as cold and hot climates, wind, moisture, sand, de-icing/anti-icing, etc.

The type training does not necessarily need to include all possible customer options corresponding to the type rating described in the Appendix I to AMC to Part-66.

4. Limited avionic system training should be included in the category B1 type training as the B1 privileges include work on avionics systems requiring simple tests to prove their serviceability.
5. Electrical systems should be included in both categories of B1 and B2 type training.
6. The theoretical and practical training should be complementary and may be:
 - Integrated or split;
 - Supported by the use of training aids, such as, trainers, virtual aircraft, aircraft components, synthetic training devices (STD), computer-based training devices (CBT), etc.

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AMC to Paragraph 3.1(d) of Appendix III to Part-66 "Aircraft Type Training and Examination Standard, On-the-Job Training"

Training Needs Analysis for the theoretical element of the aircraft type training

1. The minimum duration for the theoretical element of the type rating training course, as described in Appendix III to Part-66, has been determined based on:

- generic categories of aircraft and minimum standard equipment fit;
- the estimated average duration of standard courses imparted in Europe.

2. The purpose of the Training Needs Analysis (TNA) is to adapt and justify the duration of the course for a specific aircraft type. This means that the TNA is the main driver for determining the duration of the course, regardless of whether it is above or below the minimum duration described in Appendix III to Part-66.

In the particular case of type training courses approved on the basis of the requirements valid before Regulation (EU) 1149/2011 was applicable (01 August 2012) and having a duration for the theoretical element equal to or above the minimum duration contained in paragraph 3.1(c) of Appendix III to Part-66, it is acceptable that the TNA only covers the differences introduced by Regulation (EU) 1149/2011 in paragraph 3.1(e) "Content" and the criteria introduced in paragraph 3.1(d) "Justification of course duration" related to the minimum attendance and the maximum number of training hours per day. This TNA may result in a change in the duration of the theoretical element.

3. The content and the duration deriving from the TNA may be supported by an analysis from the Type Certificate holder.
4. In order to approve a reduction of such minimum duration, the evaluation done by the competent authority should be performed on a case-by-case basis appropriate to the aircraft type. For example, while it would be exceptional for a theoretical course for a large transport category aircraft such as an A330 or B757 to be below the minimum duration shown, it would not necessarily be exceptional in the case of a General Aviation (GA) business aircraft such as a Learjet 45 or similar. Typically, the TNA for a GA aircraft course would demonstrate that a course of a shorter duration satisfies the requirements.
5. When developing the TNA, the following should be considered:
 - a) The TNA should include an analysis identifying all the areas and elements where there is a need for training as well as the associated learning objectives, considering the design philosophy of the aircraft type, the operational environment, the type of operations and the operational experience. This analysis should be written in a manner which provides a reasonable understanding of which areas and elements constitute the course to meet the learning objectives.
 - b) As a minimum, the Training Need Analysis (TNA) should take into account all the applicable elements contained in paragraph 3.1 of Part-66 Appendix III and associated AMCs.
 - c) The TNA should set up the course content considering the Appendix III objectives for each level of training and the prescribed topics in the theoretical element table contained in paragraph 3.1 of Part-66 Appendix III.
 - d) For each Chapter described in the theoretical element table contained in paragraph 3.1 of Part-66 Appendix III, the corresponding training time should be recorded.
 - e) Typical documents to be used to identify the areas and elements where there is a need for training typically include, among others, the Aircraft Maintenance Manual, MRB report, CMRs, airworthiness limitations, Troubleshooting Manual, Structural Repair Manual, Illustrated Parts Catalogue, Airworthiness Directives and Service Bulletins.
 - f) During the analysis of these documents:
 - Consideration should be given to the following typical activities:
 - o Activation/reactivation;
 - o Removal/installation;
 - o Testing;
 - o Servicing;

- o Inspection, check and repairs;
- o Troubleshooting/diagnosis.
- For the purpose of identifying the specific elements constituting the training course, it is acceptable to use a filtering method based on criteria such as:
 - o Frequency of the task;
 - o Human factor issues associated to the task;
 - o Difficulty of the task;
 - o Criticality and safety impact of the task;
 - o In-service experience;
 - o Novel or unusual design features (not covered by Part-66 Appendix I);
 - o Similarities with other aircraft types;
 - o Special tests and tools/equipment.
- It is acceptable to follow an approach based on:
 - o Tasks or groups of tasks; or
 - o Systems or subsystems or components.

g) The TNA should:

- Identify the learning objectives for each task, group of tasks, system, subsystem or component;
- Associate the identified tasks to be trained to the regulatory requirements (table in paragraph 3.1 of Appendix III to Part-66);
- Organise the training into modules in a logical sequence (adequate combination of chapters as defined in Appendix III of Part-66);
- Determine the sequence of learning (within a lesson and for the whole syllabus);
- Identify the scope of information and level of detail with regard to the minimum standard to which the topics of the TNA should be taught according to the set-up objectives.
- Address the following:
 - o Description of each system/component including the structure (where applicable);
 - o System/component operation taking into account:
 - a. Complexity of the system (e.g. the need of further breakdown into subsystems, etc.);
 - b. Design specifics which may require more detailed presentation or may contribute to maintenance errors;
 - c. Normal and emergency functioning;
 - d. Troubleshooting;
 - e. Interpretation of indications and malfunctions;
 - f. Use of maintenance publications;
 - g. Identification of special tools and equipment required for servicing and maintaining the aircraft;
 - h. Maintenance Practices;
 - i. Routine inspections, functional or operational tests, rigging/adjustment, etc.
- Describe the following:
 - o The instructional methods and equipment, teaching methods and blending of the teaching methods to ensure the effectiveness of the training;

- o The maintenance training documentation/material to be delivered to the student;
 - o Facilitated discussions, questioning session, additional practice-oriented training, etc.;
 - o The homework, if developed;
 - o The training provider's resources available to the learner.
- h) It is acceptable to differentiate between issues which have to be led by an instructor and issues which may be delivered through interactive simulation training devices and/or covered by web-based elements. Overall time of the course will be allocated accordingly.
- i) The maximum number of training hours per day for the theoretical element of type training should not be more than 6 hours. A training hour means 60 minutes of tuition excluding any breaks, examination, revision, preparation and aircraft visit. In exceptional cases, the competent authority may allow deviation from this standard when it is properly justified that the proposed number of hours follows pedagogical and human factors principles. These principles are especially important in those cases where:
 - Theoretical and practical training are performed at the same time;
 - Training and normal maintenance duty/apprenticeship are performed at the same time.
- j) The minimum participation time for the trainee to meet the objectives of the course should not be less than 90 % of the tuition hours of the theoretical training course. Additional training may be provided by the training organisation in order to meet the minimum participation time. If the minimum participation defined for the course is not met, a certificate of recognition should not be issued.
- k) The TNA is a living process and should be reviewed/updated based on operation feedback, maintenance occurrences, Airworthiness Directives, major service bulletins impacting maintenance activities or requiring new competencies for mechanics, alert service bulletins, feedback from trainees or customer satisfaction, evolution of the maintenance documentation such as MRBs, MPDs, MMs, etc. The frequency at which the TNA should be reviewed/updated is left to the discretion of the organisation conducting the course.

NOTE: The examination is not part of the TNA. However, it should be prepared in accordance with the learning objectives described in the TNA.

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AMC to Paragraph 1(b), 3.2 and 4.2 of Appendix III to Part-66 "Aircraft Type Training and Examination Standard, On-the-Job Training"

Practical element of the aircraft type training

1. The practical training may include instruction in a classroom or in simulators but part of the practical training should be conducted in a real maintenance or manufacturer environment.
2. The tasks should be selected because of their frequency, complexity, variety, safety, criticality, novelty, etc. The selected tasks should cover all the chapters described in the table contained in paragraph 3.2 of Appendix III to Part-66.
3. The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix III to Part-66 is completed.

Nevertheless, for aeroplanes with a MTOM equal or above 30 000 kg, the duration for the practical element of a type rating training course should not be less than two weeks unless a shorter duration meeting the objectives of the training and taking into account pedagogical aspects (maximum duration per day) is justified to the competent authority.

4. The organisation providing the practical element of the type training should provide trainees with a schedule or plan indicating the list of tasks to be performed under instruction or supervision. A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks may be countersigned by the designated assessor. The logbook format and its use should be clearly defined.
5. In paragraph 4.2 of Appendix III to Part-66, the term “designated assessors appropriately qualified” means that the assessors should demonstrate training and experience on the assessment process being undertaken and be authorised to do so by the organisation.

Further guidance about the assessment and the designated assessors is provided in Appendix III to AMC to Part-66.

6. The practical element (for powerplant and avionic systems) of the Type Rating Training may be subcontracted by the approved Part-147 organisation under its quality system according to the provisions of 147.A.145(d)3 and the corresponding Guidance Material.

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AMC to Paragraph 1(c) of Appendix III to Part-66 "Aircraft Type Training and Examination Standard, On-the-Job Training"

Differences training

Approved difference training is not required for different variants within the same aircraft type rating (as specified in Appendix I to AMC to Part-66) for the purpose of type rating endorsement on the aircraft maintenance licence.

However, this does not necessarily mean that no training is required before a certifying staff authorisation can be issued by the maintenance organisation (refer to AMC 66.A.20(b)3).

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AMC to Section 5 of Appendix III to Part-66 "Aircraft Type Training and Examination Standard, On-the-Job Training"

Type Examination Standard

This Section 5 "Type Examination Standard" does not apply to the examination performed as part of type training. This Section only applies to those cases where type examination is performed as a substitute for type training.

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AMC to Section 6 of Appendix III to Part-66 "Aircraft Type Training and Examination Standard, On-the-Job Training"

On-the-Job Training (OJT)

1. *"A maintenance organisation appropriately approved for the maintenance of the particular aircraft type"* means a Part-145 or M.A. Subpart F approved maintenance organisation holding an A rating for such aircraft.
2. The OJT should include one-to-one supervision and should involve actual work task performance on aircraft/components, covering line and/or base maintenance tasks.
3. The use of simulators for OJT should not be allowed.
4. The OJT should cover at least 50 % of the tasks contained in Appendix II to AMC to Part-66. Some tasks should be selected from each paragraph of the Appendix II list. Tasks should be selected among those applicable to the type of aircraft and licence (sub)category applied for. Other tasks than those in the Appendix II may be considered as a replacement when they are relevant. Typically, in addition to the variety and the complexity, the OJT tasks should be selected because of their frequency, safety, novelty, etc.
5. Up to 50 % of the required OJT may be undertaken before the aircraft theoretical type training starts.
6. The organisation providing the on-the-job training should provide trainees with a schedule or plan indicating the list of tasks to be performed under supervision. A record of the tasks completed should be entered into a logbook which should be designed such that each task or group of tasks is countersigned by the corresponding supervisor. The logbook format and its use should be clearly defined.
7. Regarding the day-to-day supervision of the OJT programme in the approved maintenance organisation and the role of the supervisor(s), the following should be considered:
 - It is sufficient that the completion of individual OJT tasks is confirmed by the direct supervisor(s), without being necessary the direct evaluation of the assessor.
 - During the day-to-day OJT performance, the supervision aims at overseeing the complete process, including task completion, use of manuals and procedures, observance of safety measures, warnings and recommendations and adequate behaviour in the maintenance environment.
 - The supervisor(s) should personally observe the work being performed to ensure the safe completeness and should be readily available for consultation, if needed during the OJT performance.
 - The supervisor(s) should countersign the tasks and release the maintenance tasks as the trainee is still not qualified to do so.
 - The supervisor(s) should therefore:
 - o have certifying staff or support staff privileges relevant to the OJT tasks;
 - o be competent for the selected tasks;
 - o be safety-orientated;
 - o be capable to coach (setting objectives, giving training, performing supervision, evaluating, handling trainee's reactions and cultural issues, managing objectively and positively debriefing sessions, determining the need for extra training or reorientate the training, reporting, etc.);
 - o be designated by the approved maintenance organisation to carry out the supervision.
8. Regarding the assessor, the following should be considered:
 - The function of the assessor, as described in Section 6 of Appendix III to Part-66, is to conduct the final assessment of the completed OJT. This assessment should include confirmation of the completion of the required diversity and quantity of OJT and should be based on the supervisor(s) reports and feedback.

- In Section 6 of Appendix III to Part-66, the term “designated assessor appropriately qualified” means that the assessor should demonstrate training and experience on the assessment process being undertaken and should be authorised to do so by the organisation.

Further guidance about the assessment and the designated assessors is provided in Appendix III to AMC to Part-66.

- 9 The procedures for OJT should be included into the Exposition Manual of the approved maintenance organisation (Chapter 3.15, as indicated in AMC 145.A.70(a)).

However, since these procedures in the Exposition Manual are approved by the competent authority of the maintenance organisation, and providing training is not one of the privileges of a maintenance organisation, they can only be used when the licencing authority is the same as the competent authority of the maintenance organisation. In other cases, it is up to the licencing authority to decide whether it accepts such procedures for the purpose of approving the OJT (refer to AMC 66.B.115).

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AMC to Appendix III to Part-66 "Aircraft Type Training and Examination Standard, On-the-Job Training"

Aircraft type training and On-the-Job Training

The theoretical and practical training providers, as well as the OJT provider, may contract the services of a language translator in the case where training is imparted to students not conversant in the language of the training material. Nevertheless, it remains essential that the students understand all the relevant maintenance documentation.

During the performance of examinations and assessments, the assistance of the translator should be limited to the translation of the questions, but should not provide clarifications or help in relation to those questions.

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Part-66: Appendix IV - Experience requirements for extending a Part-66 Aircraft Maintenance Licence

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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 on 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	B3
A1	-	6 months	6 months	6 months	2 years	6 months	2 years	1 year	2 years	6 months
A2	6 months	-	6 months	6 months	2 years	6 months	2 years	1 year	2 years	6 months
A3	6 months	6 months	-	6 months	2 years	1 year	2 years	6 months	2 years	1 year
A4	6 months	6 months	6 months	-	2 years	1 year	2 years	6 months	2 years	1 year
B1.1	None	6 months	6 months	6 months	-	6 months	6 months	6 months	1 year	6 months
B1.2	6 months	None	6 months	6 months	2 years	-	2 years	6 months	2 years	None
B1.3	6 months	6 months	None	6 months	6 months	6 months	-	6 months	1 year	6 months
B1.4	6 months	6 months	6 months	None	2 years	6 months	2 years	-	2 years	6 months
B2	6 months	6 months	6 months	6 months	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	-

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Part-66: Appendix V - Application Form – EASA Form 19

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1. This Appendix contains an example of the form used for application 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 requirement of Annex I (Part- M) and Annex II (Part-145).

I wish to apply for initial/amendment/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 credit for Part-147 training

.....

Examination credit for equivalent exam certificates

.....

Please enclose all relevant certificates

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

Signed: Name:

Position: Date:

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APPLICATION FOR INITIAL/AMENDMENT/RENEWAL OF PART-66 AIRCRAFT MAINTENANCE LICENCE (AML)	EASA Form 19																														
APPLICANTS DETAILS: Name: Address: Nationality: Date and Place of Birth:																															
PART-66 AML DETAILS (if applicable): Licence No: Date of Issue:																															
EMPLOYERS DETAILS: Name: Address: Maintenance Organisation Approval Reference: Tel: Fax:																															
APPLICATION FOR: (Tick relevant boxes) <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Initial AML <input type="checkbox"/></td> <td style="width: 33%;">Amendment of AML <input type="checkbox"/></td> <td style="width: 33%;">Renewal of AML <input type="checkbox"/></td> </tr> <tr> <td>Rating</td> <td style="text-align: center;">A B1</td> <td style="text-align: center;">B2 B3 C</td> </tr> <tr> <td>Aeroplane Turbine</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Aeroplane Piston</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Helicopter Turbine</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Helicopter Piston</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Avionics</td> <td></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Piston engine non-pressurised aeroplanes of MTOM of 2t and below</td> <td></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Large aircraft</td> <td></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Aircraft other than large aircraft</td> <td></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table> Type endorsement/Rating endorsement/Limitation removal (if applicable):		Initial AML <input type="checkbox"/>	Amendment of AML <input type="checkbox"/>	Renewal of AML <input type="checkbox"/>	Rating	A B1	B2 B3 C	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"/>	Piston engine non-pressurised aeroplanes of MTOM of 2t and below		<input type="checkbox"/>	Large aircraft		<input type="checkbox"/>	Aircraft other than large aircraft		<input type="checkbox"/>
Initial AML <input type="checkbox"/>	Amendment of AML <input type="checkbox"/>	Renewal of AML <input type="checkbox"/>																													
Rating	A B1	B2 B3 C																													
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"/>																													
Piston engine non-pressurised aeroplanes of MTOM of 2t and below		<input type="checkbox"/>																													
Large aircraft		<input type="checkbox"/>																													
Aircraft other than large aircraft		<input type="checkbox"/>																													

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

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1. An example of the aircraft maintenance licence referred to in Annex III (Part-66) can be found on the following pages.
2. The document shall be printed in the standardised form shown but may be reduced in size to accommodate its computer generation if desired. When the size is reduced care should be exercised to ensure sufficient space is available in those places where official seals/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 printed in the English or the official language of the Member State concerned, except that if the official language of the Member State concerned is used, a second English copy shall be attached for any licence holder that works outside that Member State to ensure understanding for the purpose of mutual recognition.
4. Each licence holder shall have a unique licence number based upon a National identifier and an alpha-numeric designator.
5. The document may have the pages in any order and need not have some or any divider lines as long as the information contained is positioned such that each page layout can clearly be identified with the format of the example of the aircraft maintenance licence contained herein.
6. The document may be prepared (i) by the competent authority of the Member State or (ii) by any maintenance organisation approved in accordance with Annex II (Part-145) if the competent authority agrees so and subject to a procedure developed as part of the maintenance organisation exposition referred to in point 145.A.70 of Annex II (Part-145), except that in all cases the competent authority of the Member State will issue the document.
7. The preparation of any change to an existing aircraft maintenance licence may be carried out (i) by the competent authority of the Member State or (ii) any maintenance organisation approved in accordance with Annex II (Part-145) if the competent authority agrees so and subject to a procedure developed as part of the maintenance organisation exposition referred to in point 145.A.70 of Annex II (Part-145), except that in all cases the competent authority of the Member State will change the document.
8. The aircraft maintenance licence once issued is required to be kept by the person to whom it applies in good condition and who shall remain accountable for ensuring that no unauthorised entries are made.
9. Failure to comply with paragraph 8 may invalidate the document and could lead to the holder not being permitted to hold any certification privilege and may result in prosecution under national law.
10. The aircraft maintenance licence delivered in accordance with Annex III (Part-66) is recognised in all Member States and it is not necessary to exchange the document when working in another Member State.
11. The annex to EASA Form 26 is optional and may only be used to include national privileges, where such privileges are covered by the national regulation outside the scope of Annex III (Part-66).
12. For information the actual Annex III (Part-66) aircraft maintenance licence issued by the competent authority of the Member State may have the pages in a different order and may not have the divider lines.
13. With regard to the aircraft type rating page the competent authority of the Member State may choose not to issue this page until the first aircraft type rating needs to be endorsed and will need to issue more than one aircraft type rating page when there are a number to be listed.
14. Notwithstanding 13, each page issued will be in this format and contain the specified information for that page.
15. The licence shall clearly indicate that the limitations are exclusions from the certification privileges. If there are no limitations applicable, the LIMITATIONS page will be issued stating "No limitations".
16. Where a pre-printed format is used, 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.
17. Example of Aircraft Maintenance Licence referred to in Annex III (Part-66)EN 16.11.2011 Official Journal of the European Union L 298/115

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I.

EUROPEAN UNION (*)

[STATE]

[AUTHORITY NAME & LOGO]

II.

Part-66

AIRCRAFT MAINTENANCE

LICENCE

III.

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

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 the holder of this licence are prescribed by Regulation (EC) No 2042/2003 and in particular its Annex III (Part-66).

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 has had either 6 months of maintenance experience in accordance with the privileges granted by the licence, or met the provision for the issue of the appropriate privileges.

III. Licence No.

IX. Part-66 CATEGORIES:

VALIDITY:	A	B1	B2	B3	C
Aeroplanes Turbine			n/a	n/a	n/a
Aeroplanes Piston			n/a	n/a	n/a
Helicopters Turbine			n/a	n/a	n/a
Helicopters Piston			n/a	n/a	n/a
Avionics	n/a	n/a		n/a	n/a
Large Aircraft	n/a	n/a	n/a	n/a	
Aircraft other than large	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

X. Signature of issuing officer & date:

XI. Seal or stamp of issuing Authority:

III. Licence No:

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APPENDICES TO AMC TO PART-66

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AMC to Part-66: Appendix I: Aircraft Type Ratings For Part-66 Aircraft Maintenance Licence

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The following aircraft type ratings should be used to ensure a common standard throughout the Member States.

The inclusion of an aircraft type in the list does not indicate that the aircraft type has been already granted a type certificate under the Basic Regulation and its Implementing Rules.

In order to keep this list current and type ratings consistent, any relevant information should be first passed on to the Agency via the following link:

<http://easa.europa.eu/webgate/rulemaking-enquiry/>

Notes:

- When a modification is introduced by this Decision to an aircraft type rating or to an engine designation in the rating which affects licences already issued, the ratings on the AML licences may be modified in the next renewal or when the licence is reissued, unless there is an urgent reason to modify the licence.

In the following tables:

- The column “*TC Holder*” includes the TC holder as defined in the TCDS (EASA, FAA or other).
- Only the designations of ratings included in the column “*Part-66 Type rating endorsement*” should be used for endorsing individual type ratings on Part-66 licences.

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Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
328 Support Services	328-100 series		Dornier 328-100 (PWC PW119)
	328-300 series		Dornier 328-300 (PWC PW306)
AIR TRACTOR	AT-802 Series		Air Tractor AT-800 Series (PWC PT6)
AIRBUS	A300 B1 A300 B2-1A A300 B2-1C A300 B2-202 A300 B2-203 A300 B2K-3C A300 B4-102 A300 B4-103 A300 B4-203 A300 B4-2C A300 C4-203 A300 F4-203		Airbus A300 basic model (GE CF6)
	A300 B2-320 A300 B4-120 A300 B4-220		Airbus A300 basic model (PW JT9D)
	A300 B4-601 A300 B4-603 A300 B4-605 R A300 C4-605 R Variant F A300 F4-605 R		Airbus A300-600 (GE CF6)
	A300 B4-622 A300 B4-622 R A300 F4-622 R		Airbus A300-600 (PW 4000)
	A300 B4-620 A300 C4-620		Airbus A300-600 (PW JT9D)
	A300F4-608ST	Beluga	Airbus A300-600ST (GE CF6)
	A310-203 A310-203 C A310-221 A310-304 A310-308		Airbus A310 (GE CF6)
	A310-324 A310-325		Airbus A310 (PW 4000)
	A310-204 A310-222 A310-322		Airbus A310 (PW JT9D)
	A318-120 series		Airbus A318 (PW 6000)
	A318-110 series A319-110 series A320-111 A320-210 series A321-110 series A321-210 series		Airbus A318/A319/A320/A321 (CFM56)
	A319-130 series A320-230 series		Airbus A319/A320/A321 (IAE V2500)

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	A321-130 series A321-230 series		
	A330-200 series A330-300 series		Airbus A330 (GE CF6)
	A330-220 series A330-320 series		Airbus A330 (RPW 4000)
	A330-240 series A330-340 series		Airbus A330 (RR RB 211 Trent 700)
	A340-210 series A340-310 series		Airbus A340 (CFM56)
	A340-540 series A340-640 series		Airbus A340 (RR RB 211 Trent 500)
	A350-900 series		Airbus A350 (RR Trent XWB)
	A380-860 series		Airbus A380 (EA GP7200)
	A380-840 series		Airbus A380 (RR RB 211 Trent 900)
AIRCRAFT INDUSTRIES	L-410 M/UVP L-410 UVP-E L-410 UVP-E20 L-410 UVP-E20 CARGO L-410 UVP-E9 L-410 UVP-ELW L-410 UVP-LW	Turbolet Turbolet Turbolet Turbolet Turbolet Turbolet Turbolet	Turbolet Let L-410 (Walter M601)
	L-420		Let L-420 (Walter M601)
ALENIA AERONAUTICA	C-27J		Alenia C-27 (Allison/RR AE2100)
ANTONOV	AN-26 AN-26B		Antonov AN26 (Ivchenko AI-24)
ATR-GIE Avions de Transport Régional	ATR 42-200 ATR 42-300 ATR 42-320		ATR 42-200/300 series (PWC PW120)
	ATR 42-400 ATR 42-500 ATR 42-500 ATR 72-212 A ATR 72-212 A	42-500 42-600 A 72-500 A 72-600	ATR 42-400/500/72-212A (PWC PW120)
	ATR 72-101 ATR 72-102 ATR 72-201 ATR 72-202 ATR 72-211 ATR 72-212		ATR 72-100/200 series (PWC PW120)
BAE SYSTEMS	BAe ATP		ATP (PWC PW120)
	AVRO 146-RJ100 AVRO 146-RJ115 AVRO 146-RJ70 AVRO 146-RJ85 BAe 146 Series 100 BAe 146 Series 200 BAe 146 Series 300		BAe 146/ AVRO 146-RJ (Honeywell ALF500 Series)
	HP.137 Jetstream	Jetstream 1	HP.137 (Turbomeca Astazou)

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	Mk.1 HP.137 Jetstream Mk.1	Jetstream 2	
	HS 748 Series 2A HS 748 Series 2B HS.748 Series 1 HS.748 Series 2		HS748 (RRD Dart)
	Jetstream 200		Jetstream 200 (Turbomeca Astazou)
	Jetstream 3100 Jetstream 3200	Jetstream 31 Jetstream 32/32EP	Jetstream 31/32 (Honeywell TPE331)
	Jetstream 4100		Jetstream 41 (Honeywell TPE331)
BERIEV Aircraft Company	Be-200ES-E		Beriev 200 (Ivchenko D-436TP)
B-N GROUP Ltd. (Britten-Norman)	BN2T/-2/-2R/-4R/-4S	Turbine Islander	Britten-Norman BN2T Series (RR Corp 250)
BOEING COMPANY	B707-200 B707-200B B707-300 Series		Boeing 707 (PW JT4)
	B707-400 Series		Boeing 707 (RR Conway)
	B707-100 B707-100B B707-100B B707-300B Series B707-300C Series B720 B720B	Long Body Long Body Short Body	Boeing 707/720 (PW JT3D)
	B727 Series B727-100 Series B727-100C Series B727-200 Series B727C Series		Boeing 727 (PW JT8D)
	B737-100 B737-200 B737-200C		Boeing 737-100/200 (PW JT8D)
	B737-300 B737-400 B737-500		Boeing 737-300/400/500 (CFM56)
	B737-600 B737-700 B737-800 B737-900 B737-900ER		Boeing 737-600/700/800/900 (CFM56)
	B747-100		Boeing 747-100 (PW JT9D)
	B747-200B B747-200C B747-200F B747-300		Boeing 747-200/300 (GE CF6)
	B747-200B B747-200C B747-200F B747-300		Boeing 747-200/300 (PW JT9D)

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	B747-200B B747-200C B747-200F B747-300		Boeing 747-200/300 (RR RB211)
	B747-400 B747-400F/SF(BCF)		Boeing 747-400 (GE CF6)
	B747-400 B747-400F/SF(BCF)		Boeing 747-400 (PW 4000)
	B747-400 B747-400F/SF(BCF)		Boeing 747-400 (RR RB211)
	B747-8F B747-8I	Freighter Intercontinental	Boeing 747-8 (GE GENx)
	B747SP		Boeing 747SP (PW JT9D)
	B747SP		Boeing 747SP (RR RB211)
	B757-200 B757-200PF B757-300		Boeing 757-200/300 (PW 2000)
	B757-200 B757-200PF B757-300		Boeing 757-200/300 (RR RB211)
	B767-200 B767-300		Boeing 767-200/300 (PW 4000)
	B767-200 B767-300		Boeing 767-200/300 (PW JT9D)
	B767-200 B767-300 B767-300F B767-400ER		Boeing 767-200/300/400 (GE CF6)
	B767-300		Boeing 767-300 (RR RB211)
	B777-200 B777-200LR B777-300ER B777F	Freighter	Boeing 777-200/300 (GE 90)
	B777-200 B777-300		Boeing 777-200/300 (PW 4000)
	B777-200 B777-300		Boeing 777-200/300 (RR RB211 Trent 800)
	B787-8	Dreamliner	Boeing 787-8 (GE GENx)
	B787-8	Dreamliner	Boeing 787-8 (RR RB 211 Trent 1000)
BOMBARDIER	BD-100-1A10	Challenger 300	Bombardier BD-100-1A10 (Honeywell AS907)
	BD-700-1A10 BD-700-1A11	Global Express Global 5000	Bombardier BD-700 Series (RRD BR710)
	CL600-1A11	Challenger 600	Bombardier CL-600-1A11 (Honeywell ALF502)
	CL-600-2A12 (601 Variant) CL-600-2B16 (601-3A Variant) CL-600-2B16 (601-3R Variant)	Challenger 601 Challenger 601-3A Challenger 601-3R	Bombardier CL-600-2A12/-2B16 (variant CL 601/601-3A/3R) (GE CF34)
	CL-600-2B16 (CL 604 Variant)	Challenger-604 (MSN < 5701)	Bombardier CL-600-2B16 (variant CL 604) (GE CF34)

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	CL-600-2B16 (CL 604 Variant)	Challenger-605 (MSN > 5701)	
	CL-600-2B19	Regional Jet Series 100	Bombardier CL-600-2B19 (GE CF34)
	CL-600-2C10	Regional Jet Series 700/701/702	Bombardier CL-600-2C10/-2D15/-2D24/-2E25 (GE CF34)
	CL-600-2D15	Regional Jet Series 705	
	CL-600-2D24	Regional Jet Series 900	
	CL-600-2E25	Regional Jet Series 1000	
	DHC-8-101 DHC-8-102 DHC-8-103 DHC-8-106 DHC-8-201 DHC-8-202 DHC-8-301 DHC-8-311 DHC-8-314 DHC-8-315	DHC-8 Series 100 DHC-8 Series 100 DHC-8 Series 100 DHC-8 Series 100 DHC-8 Series 200 DHC-8 Series 200 DHC-8 Series 300 DHC-8 Series 300 DHC-8 Series 300 DHC-8 Series 300	Bombardier DHC-8-100/200/300 (PWC PW 120)
	DHC-8-400 DHC-8-401 DHC-8-402	DHC-8 Series 400 DHC-8 Series 400 DHC-8 Series 400	
	CL-215-1A10		Canadair CL-215 (PW R2800)
	CL-215-6B11 (CL-215T Variant)		Canadair CL-215 (PWC PW120)
	CL-215-6B11 (CL-415 Variant)		Canadair CL-415 (PWC PW123)
CESSNA AIRCRAFT Company	401/402		Cessna 401/402 (Continental)
	404		Cessna 404 (Continental)
	411		Cessna 411 (Continental)
	414		Cessna 414 (Continental)
	421		Cessna 421 (Continental)
	425	Corsair/Conquest I	Cessna 425 (PWC PT6)
	441		Cessna 441 (Honeywell TPE331)
	500 501	Citation/Citation I Citation I	Cessna 500/ 501/551 (PWC JT15D)
	510		Cessna 510 (PWC PW615)
	525 525A	Citation Jet CJ1 Citation Jet CJ2	Cessna 525/525A (Williams FJ 44)
	525B 525C	Citation Jet CJ3 Citation Jet CJ4	Cessna 525B/C (Williams FJ 44)
	550 560 560 S550	Citation II Citation V Citation Ultra Citation S/II	Cessna 550/560 (PWC JT15D)
	550 560 560	Citation Bravo Citation Encore Citation Encore +	Cessna 550/560 (PWC PW530/535)

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	560 XLS 560 XLS+ 560 XL	Citation XLS Citation XLS+ Citation Excel	Cessna 560XL/XLS (PWC PW545)
	650 650	Citation III, VI Citation VII	Cessna 650 (Honeywell TFE731)
	680	Sovereign	Cessna 680 (PWC PW306)
	750	Citation X	Cessna 750 (RR Corp AE3007C)
DASSAULT AVIATION	Falcon 10		Falcon 10 (Honeywell TFE731)
	Fan Jet Falcon Fan Jet Falcon Series C Fan Jet Falcon Series D Fan Jet Falcon Series E Fan Jet Falcon Series F	(Basic) Fan Jet Falcon	Falcon 20 (GE CF700)
	Fan Jet Falcon Series G Mystère Falcon 200 Mystère Falcon 20GF		Falcon 200 (Honeywell ATF 3-6)
	Falcon 2000		Falcon 2000 (CFE 738)
	Falcon 2000EX		Falcon 2000EX (PWC PW308)
	Falcon 2000EX Falcon 2000EX Falcon 2000EX	F2000EX EASy F2000DX F2000LX	Falcon 2000EX EASy (PWC PW308)
	Mystère Falcon 20-C5 Mystère Falcon 20-D5 Mystère Falcon 20-E5 Mystère Falcon 20-F5		Falcon 20-5 (Honeywell TFE731)
	Mystère Falcon 50		Falcon 50 (Honeywell TFE731)
	Mystère Falcon 50	F50EX	Falcon 50EX (Honeywell TFE731)
	Falcon 7X		Falcon 7X (PWC PW307A)
	Mystère Falcon 900 Mystère Falcon 900	F900B	Falcon 900 (Honeywell TFE731)
	Mystère Falcon 900	F900C	Falcon 900C (Honeywell TFE731)
	Falcon 900EX		Falcon 900EX (Honeywell TFE731)
	Falcon 900EX Falcon 900EX Falcon 900EX	F900EX EASy F900DX F900LX	Falcon 900EX EASy (Honeywell TFE731)
DORNIER Seastar	Seastar CD2		Dornier Seastar CD2 (PWC PT6)
EADS CASA	C-212-CB C-212-CC C-212-CD C-212-CE C-212-CF C-212-DD C-212-DF C-212-EE C-212-VA	Aviocar Aviocar Aviocar Aviocar Aviocar Aviocar Aviocar Aviocar Aviocar	CASA C-212 (Honeywell TPE331)

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	C-212-DE	Aviocar	CASA C-212 (PWC PT6)
	C-295		CASA C-295 (PWC PW127)
	CN-235 CN-235-100 CN-235-200 CN-235-300		CASA CN-235 (GE CT7)
ECLIPSE AEROSPACE Inc.	EA500		Eclipse EA500 (PWC PW610)
EMBRAER	EMB-110P1 EMB-110P2	Bandeirante Bandeirante	Embraer EMB-110 (PWC PT6)
	EMB-121A EMB-121A1	Xingu I Xingu II	Embraer EMB-121 (PWC PT6)
	EMB-120 EMB-120ER EMB-120RT	Brasilia Brasilia Brasilia	Embraer EMB-120 (PWC PW110 Series)
	EMB-135BJ EMB-135ER EMB-135LR EMB-145 EMB-145EP EMB-145ER EMB-145EU EMB-145LR EMB-145LU EMB-145MK EMB-145MP	Legacy 600 Legacy 650	Embraer EMB-135/145 (RR Corp AE3007A)
	EMB-500	Phenom 100	Embraer EMB-500 (PWC PW617)
	EMB-505	Phenom 300	Embraer EMB-505 (PWC PW535)
	ERJ 170-100 LR ERJ 170-100 STD ERJ 170-200 LR ERJ 170-200 STD	ERJ-170 ERJ-170 ERJ-175 ERJ-175	Embraer ERJ-170 Series (GE CF34)
	ERJ 190-100 ECJ ERJ 190-100 IGW ERJ 190-100 LR ERJ 190-100 SR ERJ 190-100 STD ERJ 190-200 IGW ERJ 190-200 LR ERJ 190-200 STD	Lineage 1000 ERJ-190 AR ERJ-190 ERJ-190 ERJ-190 ERJ-195 AR ERJ-195 ERJ-195	Embraer ERJ-190 Series (GE CF34)
MARYLAND AIR INDUSTRIES (FOKKERFAIRCHILD)	F-27A to –M FH-227 FH-227B FH-227C FH-227D FH-227E		Fokker F27/Fairchild F-27/FH-227 (RRD Dart)
FOKKER SERVICES	F27 Mark 100 F27 Mark 200 F27 Mark 300 F27 Mark 400	Friendship Friendship Friendship Friendship	

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	F27 Mark 500 F27 Mark 600 F27 Mark 700	Friendship Friendship Friendship	
FOKKER SERVICES	F27 Mark 050 F27 Mark 0502 F27 Mark 0604	Fokker 50 Fokker 50 Fokker 60	Fokker 50/60 Series (PWC PW 125/127)
	F28 Mark 0070 F28 Mark 0100	Fokker 70 Fokker 100	Fokker 70/100 (RRD Tay)
	F28 Mark 1000 F28 Mark 1000C F28 Mark 2000 F28 Mark 3000 F28 Mark 3000C F28 Mark 3000R F28 Mark 3000RC F28 Mark 4000	Fellowship Fellowship Fellowship Fellowship Fellowship Fellowship Fellowship Fellowship	Fokker F28 Series (RRD Spey)
GOMOLZIG			Dornier Do 28 (Walter M601)
GOVERNMENT AIRCRAFT FACTORIES (ASTA)	N22/N22A to N22S N24/N24A		Nomad N22/24 Series (RR Corp 250)
GROB Luft- und Raumfahrt			Grob G 520 Series (Honeywell TPE331)
GULFSTREAM AEROSPACE Corporation	G-1159 G-1159A G-1159B	Gulfstream II Gulfstream IIB Gulfstream III	Gulfstream G-1159 Series (RRD Spey)
	G-159	Gulfstream I	Gulfstream G-159 (RRD Dart)
	GIV (G300) GIV (G400) G-IV/GIV-SP	Gulfstream G300 Gulfstream G400 Gulfstream GIV/GIV-SP	Gulfstream G-IV Series (RRD Tay)
	GIV-X (G350) GIV-X (G450)	Gulfstream G350 Gulfstream G450	Gulfstream GIV-X Series (RRD Tay)
	GV	Gulfstream GV	Gulfstream GV basic model (RRD BR710)
	GV-SP (G500) GV-SP (G550)	Gulfstream G500 Gulfstream G550	Gulfstream GV-SP Series (RRD BR710)
GULFSTREAM AEROSPACE LP (GALP) c/o Israel Aircraft Industries	1125 Westwind Astra Astra SPX G100	Gulfstream 100	Gulfstream (IAI) 100/1125/Astra SPX (Honeywell TFE731)
GULFSTREAM AEROSPACE LP (GALP) c/o Israel Aircraft Industries	Gulfstream 200 / IAI Galaxy	Galaxy 200	Gulfstream (IAI) 200/Galaxy (PWC PW306)
	Gulfstream G150	Gulfstream G150	Gulfstream (IAI) G150 (Honeywell TFE731)
HAWKER BEECHCRAFT Corporation	65-90 65-A90 65-A90-1 65-A90-2 65-A90-4 B90 C90 C90A	King Air	Beech 90 Series (PWC PT6)

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	C90GT C90GTi E90 F90 H90		
	200/A200 200C/A200C 200CT/A200CT 200T B200 B200C B200CGT B200CT B200GT B200T		Beech 200 Series (PWC PT6)
	390	Premier 1, 1A	Beech 390 (Williams FJ44)
	99 100 99A A100 A100A/C A99 A99A B99 C99	King Air King Air King Air Airliner Airliner Airliner Airliner	Beech 99/100 Series (PWC PT6)
	B100		Beech B100 (Honeywell TPE331)
	1900 1900C 1900D	Airliner Airliner Airliner	Beech 1900 (PWC PT6)
	300 300LW B300 B300C	Super King Air Super King Air Super King Air 350 Super King Air 350 C	Beech 300 Series (PWC PT6)
	400 400A 400T MU-300 MU-300-10	Beechjet Beechjet (Hawker 400XP) Beechjet Diamond I/IA Diamond II	Beech 400/Mitsubishi MU-300 (PWC JT15)
	BH.125 series 400 BH.125 series 600 DH.125 series 1 DH.125 series 3 DH.125 series 400 HS.125 series 1 HS.125 series 3 HS.125 series 400 HS.125 series 600 HS.125 series F3 HS.125 series F400 HS.125 series F600	"Beechcraft Hawker" "Beechcraft Hawker" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley"	BAe 125 Series (RR Viper)

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	BAe.125 series 800 BH.125 series 400 BH.125 series 600 DH.125 series 1 DH.125 series 3 DH.125 series 400 Hawker 800 HS.125 series 3 HS.125 series 600 HS.125 series 700 HS.125 series F3 HS.125 series F400 HS.125 series F600	"Beechcraft Hawker" "Beechcraft Hawker" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley" "Hawker Siddeley"	BAe 125 Series /700/800 (Honeywell TFE731)
	BAe.125 series 1000A/B Hawker 1000		BAe 125 Series 1000 (PWC PW305)
	Hawker 750 Hawker 800XP Hawker 850XP Hawker 900XP	Hawker 750 Hawker 800XP Hawker 850XP Hawker 900XP	BAe 125 Series 750/800XP/850XP/900XP (Honeywell TFE731)
	4000	Hawker 4000	Hawker 4000 (PWC PW308)
ISRAEL AIRCRAFT INDUSTRIES	IAI 1121 IAI 1121A IAI 1121B IAI 1123	Jetcommander Jetcommander Jetcommander Commodore Jet	IAI 1121/1123 (GE CJ610)F
	IAI 1124 IAI 1124A	Westwind Westwind	IAI 1124 (Honeywell TFE731)
KELOWNA (Convair)	440		Convair 580 (RR Corp 501)
LEARJET	LJ 23		Learjet 23 (GE CJ610)
	24 /24A 24B / 24B-A 24C 24D / 24D-A 24E 24F / 24F-A 25 25A 25B 25C 25D 25F		Learjet 24/25 (GE CJ610)
	31 / 31A		Learjet 31 (Honeywell TFE731)
	35 / 35A 36 / 36A		Learjet 35/36 (Honeywell TFE731)
	55 / 55B / 55C		Learjet 55 (Honeywell TFE731)
	Learjet 60	LJ60 LJ60XR	Learjet 60 (PWC PW305)
	Learjet 40	LJ45 LJ40XR	Learjet Model 45 (Honeywell TFE731)
	Learjet 45	LJ45 LJ 45XR	

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
LOCKHEED MARTIN Corporation	1329-25	JetStar II	Lockheed 1329 (Honeywell TFE731)
	1329-23D	JetStar	Lockheed 1329 PW (PW JT12)
	Model 188C Model L188A	Electra Electra	Lockheed 188 (RR Corp 501)
	382G	Hercules	Lockheed 382 (RR Corp 501)
	L-1011-385-1 L-1011-385-1-15 L-1011-385-3	TriStar TriStar TriStar	Lockheed L-1011 (RR RB211)
M7 AEROSPACE	SA-26-T		Fairchild SA26-T (PWC PT6)
	SA26AT		Fairchild SA26 AT (Honeywell TPE331)
	SA226-AT SA226-T SA226-T(B) SA226-TC		Fairchild SA226 (Honeywell TPE331)
	SA227-AC SA227-AT SA227-BC SA227-CC SA227-DC SA227-TT	Swearingen Metro Swearingen Metro	Fairchild SA227 Series (Honeywell TPE331)
	SA227-PC	Swearingen Metro	Fairchild SA227 Series (PWC PT6)
	DC-10-10 DC-10-30 DC-10-30F		DC-10/MD-10 (GE CF6)
	DC-8 Series 70 DC-8 Series 70F		DC-8 (CFM56)
McDONNELL DOUGLAS Corporation	DC-8 Series 50 DC-8 Series 60 DC-8 Series 60F DC-8F		DC-8 (PW JT3D)
	DC-8 Series 40		DC-8 (RR Conway)
	DC-9-10 Series DC-9-20 Series DC-9-30 Series DC-9-40 Series DC-9-50 Series		DC-9 (PW JT8D)
	717-200		MD 717-200 (RRD BR700-715)
	MD-11 MD-11F		MD-11 (GE CF6)
	MD-11		MD-11 (PW 4000)
	DC-9-81 (MD-81) Series DC-9-82 (MD-82) Series DC-9-83 (MD-83) Series DC-9-87 (MD-87) Series MD-88	MD-81 MD-82 MD-83 MD-87	MD-80 Series (PW JT8D)
	MD-90 Series		MD-90 (IAE V2500)

Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
MITSUBISHI Heavy Industries	MU-2B-26A MU-2B-36A MU-2B-40 MU-2B-60		Mitsubishi MU-2B (Honeywell TPE331)
PIAGGIO Aero Industries	P.166 DP1		Piaggio P166 (PWC PT6)
	P180 P180	Avanti Avanti II	Piaggio P180 Avanti/Avanti II (PWC PT6)
PILATUS AIRCRAFT	PC-12 PC-12/45 PC-12/47 PC-12/47E		Pilatus PC-12 (PWC PT6)
PIPER AIRCRAFT	PA31T to T3	Cheyenne	Piper PA-31T Series (PWC PT6)
	PA-42-1000	Cheyenne 400LS	Piper PA-42 (Honeywell TPE-331)
	PA-42 PA-42-720 PA-42-720R	Cheyenne III Cheyenne IIIA	Piper PA-42 (PWC PT6)
	PA-46-500TP	Malibu Meridian	Piper PA-46-500TP (PWC PT6)
POLSKIE ZAKŁADY LOTNICZE	PZL M28 00 PZL M28 02 PZL M28 05		PZL M 28 (PWC PT6)
REIMS AVIATION	F 406	Caravan II	Reims-Cessna F 406 (PWC PT6)
RUAG Aerospace Services GmbH	DO 28 D-6 Dornier 128-6		Dornier Do 28 Series (PWC PT6)
	228-100 series 228-200 series		Dornier 228 (Honeywell TPE331)
SAAB AB, SAAB Aerosystems	340A(SF340A) 340B	Saab-Fairchild 340A	Saab (SF) 340 (GE CT7)
	2000		Saab 2000 (RR Corp AE2100)
SABRELINER Corporation	NA-265-65		Sabreliner NA-265 (Honeywell TFE731)
	NA-265-65		Sabreliner NA-265 (PW JT12)
SHORT BROTHERS	Skyvan		Shorts SC7 (Honeywell TPE331)
	SD3-30 SD3-60 SD3-60 SHERPA SD3-SHERPA	Variant 200 Variant 200 Variant 200 Variant 200	Shorts SD3 Series-30/SD3-60 (PWC PT6)
SOCATA	TBM 700 A TBM 700 B TBM 700 C1 TBM 700 C2 TBM 700 N	TBM 850	Socata TBM 700/850 (PWC PT6)
TUPOLEV PSC	TU 204-120CE		Tupolev TU 204 (RR RB211)
TWIN COMMANDER AIRCRAFT Corporation	681 690 695 680-T 680-V 680-W 690A 690B 690C 690D		Twin Commander 680/681/690/695 Series (Honeywell TPE331)

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Group 1 Aeroplanes

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	695A 695B		
VIKING AIR (Bombardier) (De Havilland)	DHC-6-1 DHC-6-100/110 DHC-6-200/210 DHC-6-300/310/320 DHC-6-400	Twin Otter	De Havilland DHC-6 (PWC PT6)
	DHC-7-100 DHC-7-101 DHC-7-102 DHC-7-103 DHC-7-110 DHC-7-111		De Havilland DHC-7 (PWC PT6)
VULCANAIR	AP68TP300 AP68TP600	Spartacus Viator	Vulcanair AP68TP Series (RR Corp 250)
	SF600 SF600A		Vulcanair SF600 (RR Corp 250)

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Group 1 Helicopters

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
AGUSTA	A109E A109N A109S AW109SP		Agusta A109 Series (PWC PW206/207)
	A109 A109A A109All A109C		Agusta A109 Series (RR Corp 250)
	A109K2		Agusta A109 (Turbomeca Arriel 1)
	A109E A109LUH		Agusta A109 Series (Turbomeca Arrius 2)
	AB139 AW139		Agusta AB139/AW139 (PWC PT6)
	EH101-500 Series EH101-510 Series EH101-300		Agusta/Westland EH-101 (GE CT7)
	AB 212		Bell 212/Agusta AB212 (PWC PT6)
BELL HELICOPTER TEXTRON, INC.	212		
AGUSTA	AB 204 B Series AB 205 A1		Agusta AB204, AB205/Bell 204, 205 (Honeywell T53)
BELL HELICOPTER TEXTRON, INC.	204B 205A-1		
BELL HELICOPTER TEXTRON, INC.	412 412EP 412CF		Bell 412/Agusta AB412 (PWC PT6)
AGUSTA	AB 412 AB 412 EP		
BELL HELICOPTER TEXTRON	214B 214B-1		Bell 214 (Honeywell T5508)
	214ST		Bell 214ST (GE CT7)
BELL HELICOPTER CANADA	222 222B 222U		Bell 222 (Honeywell LTS 101)
	230 230 230	230 Executive 230 Utility 230 EMS	Bell 230 (RR Corp 250)
	427		Bell 427 (PWC PW207D)
	429		Bell 429 (PWC PW207D)
	430		Bell 430 (RR Corp 250)
ERICKSON AIRCRANE	EAC S-64F		Erickson S-64 (PW JFTD 12)
EUROCOPTER	SA 330 F SA 330 G SA 330 J		Eurocopter SA 330 (Turbomeca Turmo)
	AS 332 C AS 332 L 1A/1A1) AS 332 C1 AS 332 L1		Eurocopter AS 332 (Turbomeca Makila)

Group 1 Helicopters

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	AS 332 L2		Eurocopter AS 332 L2 (Turbomeca Makila 1A2)
	AS 355 E AS 355 F AS 355 F1 AS 355 F2		Eurocopter AS 355 (RR Corp 250)
	AS 355 N AS 355 NP		Eurocopter AS 355 (Turbomeca Arrius 1)
	SA 365 N	Dauphin	Eurocopter SA 365 N (Turbomeca Arriel 1)
	SA 365 N1 AS 365 N2	Dauphin Dauphin	Eurocopter SA 365 N1, AS 365 N2 (Turbomeca Arriel 1)
	AS 365 N3	Dauphin	Eurocopter AS 365 N3 (Turbomeca Arriel 2C)
	EC 155 B EC 155 B1		Eurocopter EC 155 (Turbomeca Arriel 2)
	EC 225 LP		Eurocopter EC 225 (Turbomeca Makila 2A)
	SA 365 C SA 365 C1 SA 365 C2 SA 365 C3	Dauphin Dauphin Dauphin Dauphin	Eurocopter SA 365 C Series (Turbomeca Arriel 1)
	SA 366 G1	Dauphin	Eurocopter SA 366 G1 Series (Lycoming LTS101)
EUROCOPTER DEUTSCHLAND GmbH	BO 105 A BO 105 C BO 105 D Series		BO 105 series (RR Corp 250)
	BO 105 LS A-1 BO 105 LS A-3 BO 105 S		
	EC 135 P1 Series EC 135 P2 Series EC 635 P2+		Eurocopter EC 135 (PWC PW206)
	EC 135 T1 Series EC 135 T2 Series EC 635 T1 EC 635 T2 Series		Eurocopter EC 135 (Turbomeca Arrius 2B)
	MBB-BK 117 A Series MBB-BK 117 B Series		Eurocopter MBB-BK 117 A/B (Honeywell LTS 101)
	MBB-BK 117 C1		Eurocopter MBB-BK 117 C1 (Turbomeca Arriel 1)
	MBB-BK 117 C2	EC145	Eurocopter MBB-BK 117 C2 (Turbomeca Arriel 1)
KAMAN AEROSPACE CORPORATION	K-1200		Kaman K-1200 (Honeywell T5317)
KAMOV	Ka-32A11BC		Kamov Ka 32 (Klimov)
MD HELICOPTERS, Inc.	MD900		MD Helicopters MD900 (PWC PW206/207)
PZL-ŚWIDNIK	W-3A W-3AS		PZL-Swidnik W-3A/W-3AS (Rzeszow PZL-10W)
AGUSTA	AS61N AS61NI		Agusta AS61N/Sikorsky S-61N (GE CT58)
SIKORSKY AIRCRAFT	S-61N S-61NM		
SIKORSKY AIRCRAFT	S-58 BT to JT		Sikorsky S-58 (PWC PT6T)
	S-76A		Sikorsky S-76A (RR Corp 250)
	S-76A	S-76A+	Sikorsky S-76 (Turbomeca Arriel 1)

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Group 1 Helicopters

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
	S-76A	S-76A++	
	S-76B	S-76B	Sikorsky S-76B (PWC PT6)
	S-76C		Sikorsky S-76C (Turbomeca Arriel 1)
	S-76C	S-76C+	Sikorsky S-76C (Turbomeca Arriel 2)
	S-76C	S-76C++	
	S-92A		Sikorsky S-92A (GE CT7-8)

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Sub-Group 2a: Single Turbo-Propeller Engine Aeroplanes (Other than those in Group 1)

TC holder	Part-66 Type rating endorsement
AERO VODOCHODY	Aero Ae-270 (PWC PT6)
AIR TRACTOR	Air Tractor AT-302 (Lycoming LTP-101) Air Tractor AT-400/500/600 Series (PWC PT6)
ALENIA AERMACCHI	Aermacchi SF260 (RR Corp 250)
ALLIED AG CAT Productions	Grumman G-164 (PWC PT6)
CESSNA AIRCRAFT Company	Cessna (Soloy) 206/207 (RR Corp 250) Cessna 208 Series (PWC PT6) Cessna 210 (RR Corp 250)
EADS PZL "WARSZAWA-OKECIE"	EADS PZL PZL-106 BT (Walter M601) EADS PZL PZL-106 BTU (PWC PT6)
EXTRA Flugzeugproduktions- und Vertriebs-GmbH	Extra EA-400-500 (RR Corp 250)
MAULE AEROSPACE TECHNOLOGY	Maule MX-7 (RR Corp 250)
PACIFIC AEROSPACE Corporation	PAC 750XL (PWC PT6)
PILATUS AIRCRAFT	Pilatus PC-6 Series (Turbomeca Astazou) Pilatus PC-6 (PWC PT6) Pilatus PC-6 Series (Honeywell TPE 331)
THRUSH AIRCRAFT	Ayres S2R Series (PWC PT6)
VIKING AIR (Bombardier) (De Havilland)	De Havilland DHC-2 (PWC PT6)
ZLIN AIRCRAFT	Zlin Z-37 T Series (Walter M601)

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Sub-Group 2b: Single Turbine Engine Helicopters (Other than those in Group 1)

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
AGUSTA	A119 AW119 MkII	Koala Koala	Agusta A119/ Agusta AW119MkII (PWC PT6)
BELL HELICOPTER CANADA	407		Bell 407 (RR Corp 250)
AGUSTA	AB 206A AB 206B		Agusta AB206 / Bell 206 (RR Corp 250)
BELL HELICOPTER TEXTRON CANADA LIMITED	206 Series from A to L		
THE ENSTROM HELICOPTER CORPORATION	480		Enstrom 480 (RR Corp 250)
EUROCOPTER	AS 350 B AS 350 B1 AS 350 B2 AS 350 BA AS 350 BB	Écureuil	Eurocopter AS 350 (Turbomeca Arriel 1)
	AS 350 B3		Eurocopter AS 350 (Turbomeca Arriel 2)
	AS 350 D		Eurocopter AS 350 (Honeywell LTS 101)
	EC 120 B	Colibri	Eurocopter EC 120 (Turbomeca Arrius 2F)
	EC 130 B4		Eurocopter EC 130 (Turbomeca Arriel 2B)
	SA 315 B	Lama	Eurocopter SA 315B (Turbomeca Artouste)
	SA 3180 SA 318 B SA 318 C	Alouette-Astazou	Eurocopter SA 318 (Turbomeca Astazou)
	SA 319 B	Alouette III	Eurocopter SA 319 (Turbomeca Astazou XIV)
	SA 341 G	Gazelle	Eurocopter SA 341 (Turbomeca Astazou)
	SA 342 J	Gazelle	Eurocopter SA 342 J (Turbomeca Astazou XIV)
	SA 360C	Dauphin	Eurocopter SA 360 (Turbomeca Astazou XVIIIA)
	SE 3160 SA 316 B SA 316 C	Alouette III	Eurocopter SA 316 B/SA 316 C (Turbomeca Artouste)
MD HELICOPTERS INC. (MDHI)	369 H series 369 D, E and FF NH-500D		MD Helicopters 369 Series/SEI NH-500D (RR Corp 250)
MD HELICOPTERS INC. (MDHI)	500N 600N		MD Helicopters 500N/600N AMD500N (RR Corp 250)
Mecaer Aviation Group	AMD-500N		
PZL-ŚWIDNIK	SW-4		PZL SW-4 (RR Corp 250)
ROBINSON HELICOPTER COMPANY	R66		Robinson R66 (RR Corp 250)
SCHWEIZER AIRCRAFT CORPORATION	269D		Schweizer 269D (RR Corp 250)

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Sub-Group 2c: Single Piston-Engine Helicopters (Other than those in Group 1)

TC holder	Model	Commercial Designation	Part-66 Type rating endorsement
ANTARES INTERNATIONAL	SH-4		Silvercraft SH-4 (Franklin)
AGUSTA	AB 102		Agusta AB 102 (PW S1H4)
BRANTLY INTERNATIONAL, INC.	B-2		Brantly B2 (Lycoming)
HELICOPTÈRES GUIMBAL	G2	Cabri	Cabri G2 (Lycoming)
THE ENSTROM HELICOPTER CORPORATION	F-28 series 280 series		Enstrom F-28/280 (Lycoming) Enstrom F-28/280 (Lycoming)
Mecaer Aviation Group	NH 300C		Model 300C Schweizer/Breda Nardi 269/300 (Lycoming)
SCHWEIZER AIRCRAFT CORPORATION	269A 269B 269C 269C-1	Model 300C Model 300C Model 300C Model 300C	
ROBINSON HELICOPTER	R22 COMPANY R22 ALPHA R22 BETA R22 MARINER R44 R44 II		Robinson R22/R44 Series (Lycoming)
SIKORSKY AIRCRAFT	S-58 A to J		Sikorsky S-58 (Wright Cyclone)

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Group 3: Piston-Engine Aeroplanes (Other than those in Group 1)

TC holder	Part-66 Type rating endorsement
AERO Sp.z.o.o	Aero AT-3 (Rotax)
AEROSTAR AIRCRAFT Corporation	Piper PA-60/61 Series (Lycoming)
AIR TRACTOR	Air Tractor AT-250/300 (PW R985) Air Tractor AT-301/401/501 (PW R1340) Air Tractor AT-401 (PZL-3S)
Air Transport Group Holdings, Inc	Lake C/LA Series (Lycoming)
AIRCRAFT Design and Certification	(WD) D4 Fascination (Rotax)
AIRCRAFT INDUSTRIES	Let L 200 (LOM) Let Z-37 Series (LOM)
ALENIA AERMACCHI	Aermacchi F260 Series (Lycoming) SIAI-Marchetti S.205 (Franklin) SIAI-Marchetti S.205/S.208 (Lycoming) Bellanca 14-19 Series (Continental) Bellanca 17-30/17-31 Series (Continental)
ALLIED AG CAT Productions	Grumman G-164 (Continental) Grumman G-164 (Jacobs) Grumman G-164 (PW R Series)
ALPHA AVIATION	Robin HR 200/ R 2000 series (Lycoming)
AMERICAN CHAMPION	Champion 7 (Superior) Champion 7 (Lycoming) Champion 8 Series (Lycoming)
AQUILA Aviation by Excellence AG	Aquila AT01 (Rotax)
B-N GROUP Ltd. (Britten-Norman)	Britten-Norman BN.2A Mark III (Lycoming) Britten-Norman BN2A Series (Lycoming) Britten-Norman BN2B Series (Lycoming)
CEAPR	Robin ATL / ATL S (JPX 4T60) Robin ATL L (Limbach L2000) Robin DR 220 series (Continental) Robin DR 250 series (Lycoming) Robin DR 300 series (Lycoming) Robin DR 400 series (Lycoming) Robin DR 400 Series (Thielert) Robin DR 400RP (Porsche) Robin HR 100 series (Continental) Robin HR 100 series (Lycoming) Robin R 1180 series (Lycoming) Robin R 3000 series (Lycoming)
CESSNA AIRCRAFT Company	Cessna 150 Series (Rotax) Cessna 175 Series (Continental) Cessna 175 Series (Lycoming) Cessna 177 Series (Lycoming) Cessna 180 Series (Continental) Cessna 185 Series (Continental) Cessna 188 (Continental) Cessna 206 Series (Continental) Cessna 206 Series (Lycoming) Cessna 206 Series (Thielert) Cessna 207 Series (Continental) Cessna 210 Series (Continental) Cessna 310/320 Series (Continental)

Group 3: Piston-Engine Aeroplanes (Other than those in Group 1)

TC holder	Part-66 Type rating endorsement
	Cessna 335 (Continental) Cessna 336 (Continental) Cessna 340 (Continental) Cessna T303 (Continental) Cessna/Reims-Cessna 150/F150 Series (Continental) Cessna/Reims-Cessna 152/F152 Series (Lycoming) Cessna/Reims-Cessna 172/F172 Series (Continental) Cessna/Reims-Cessna 172/F172 Series (Lycoming) Cessna/Reims-Cessna 172/F172 Series (Thielert) Cessna/Reims-Cessna 182/F182 Series (Continental) Cessna/Reims-Cessna 182/F182 Series (Lycoming) Cessna/Reims-Cessna 182/F182 Series (SMA) Cessna/Reims-Cessna 337 Series (Continental) (not pressurised) Cessna/Reims-Cessna 337 Series (Continental) (pressurised) Cessna C300/C350/C400 (Continental)
CIRRUS Design Corporation	Cirrus SR20/SR22/SR22T Series (Continental) Cirrus SR22 Series (Thielert)
COMMANDER PREMIER AIRCRAFT CO.	Commander 112 (Lycoming) Commander 114 (Lycoming)
DE HAVILLAND Support	Beagle B.121 series 1 (Continental) Beagle B.121 series 2/3 (Lycoming)
DIAMOND AIRCRAFT Industries	Diamond DA20 (Continental) Diamond DA20/DV20 (Rotax) Diamond DA40 (Austro Engine) Diamond DA40 (Lycoming) Diamond DA40 D (Thielert) Diamond DA42 Series (Austro Engine) Diamond DA42 Series (Thielert)
DYNAC AEROSPACE Corporation	Aerocommander 100 (Lycoming)
Dyn'aviation	CAP 10 (Lycoming) CAP 20/21 (Lycoming) CAP 230 Series (Lycoming)
EADS Deutschland Military Air Syst	Bölkow BO 208 (Continental) Bölkow BO 209 (Lycoming) Bölkow F.207 (Continental) Bölkow F.207 (Lycoming) SIAT 223 (Lycoming)
EADS PZL "WARSZAWA OKECIE"	PZL-104 Wilga (Lycoming) PZL-104 Wilga Series (PZL) PZL-104A Wilga (Ivchenko)
EIS GmbH	RS 180 (Lycoming)
EVEKTOR	Evektor EV-97 (Rotax)
EXTRA Flugzeugproduktions- und Vertriebs-GmbH	Extra EA-300 Series (Lycoming) Extra EA-400 (Continental)
FFA ALTENRHEIN	AS202 Series (Lycoming)
FFT GYROFLUG	SC01 Series (Lycoming)
FLS AEROSPACE	Club Sprint/Sprint 160 (Lycoming) OA7 Optica Series (Lycoming)
Fournier, René	RF 47 (Limbach) RF 6B (Continental) RF 6B (Lycoming)

Group 3: Piston-Engine Aeroplanes (Other than those in Group 1)

TC holder	Part-66 Type rating endorsement
FUJI Heavy Industries	Fuji FA-200 Series (Lycoming)
GA8 Airvan Pty Ltd	Gippsland GA8 (Lycoming)
GARDAN	Gardan GY 80 (Lycoming)
GENERAL AVIA Costruzioni Aeronautiche	General Avia F.22 (Lycoming) General Avia F20 Series (Lycoming)
GOMOLZIG	Ruscmeyer R90-230RG (Lycoming)
GROB Luft- und Raumfahrt	Grob G115/120 Series (Lycoming)
HAWKER BEECHCRAFT Corporation	Beech 23 Series (Lycoming) Beech 24 Series (Lycoming) Beech 33 Series (Continental) Beech 35 Series (Continental) Beech 36 Series (Continental) Beech 50 Series (Lycoming) Beech 55 Series (Continental) Beech 56 Series (Lycoming) Beech 58 Series (Continental) Beech 58P (Continental) Beech 58TC (Continental) Beech 60 Series (Lycoming) Beech 65-80 Series (Lycoming) Beech 76 (Lycoming) Beech 77 (Lycoming) Beech 95 Series (Lycoming) Beech A23 (Continental)
Hoffmann GmbH & Co. KG	H 40 (Lycoming)
INIZIATIVE INDUSTRIALI ITALIANE	III Sky Arrow 650/710 (Rotax)
INSTYTUT LOTNICTWA	Instytut Lotnictwa I-23 Manager (Lycoming)
INTERCEPTOR AIRCRAFT Corporation	Aerocommander 200 (Continental)
ISSOIRE AVIATION	Issoire APM 20/30 (Rotax)
LAVIA ARGENTINA S.A. (LAVIASA)	Piper PA-25 Series (Lycoming)
LIBERTY AEROSPACE Incorporated	Liberty XL-2 (Continental)
MAULE AEROSPACE TECHNOLOGY	Maule M4 (Continental) Maule M4 (Franklin) Maule M5 (Continental) Maule M5 (Franklin) Maule M5 (Lycoming) Maule M6 (Lycoming) Maule M7 Series (Lycoming) Maule MX-7 (Lycoming)
MOONEY AIRPLANE Company	Mooney M18L (Continental) Mooney M20 (Continental) Mooney M20/M20A (Lycoming) Mooney M20B to M20S/M22 (Lycoming)
NIPPER	Nipper T-66 (Stark)
OMA SUD SPA Sky Technologies	SKYCAR (Lycoming)
PIAGGIO Aero Industries	Piaggio P166 (Lycoming)
PILATUS AIRCRAFT	Pilatus PC-6 Series (Lycoming)
PIPER AIRCRAFT	Piper PA-23 Aztec (Lycoming) Piper PA-24 Series (Lycoming) Piper PA-28 Series (Continental) Piper PA-28 Series (Lycoming) Piper PA-28 Series (Thielert)

Group 3: Piston-Engine Aeroplanes (Other than those in Group 1)

TC holder	Part-66 Type rating endorsement
	Piper PA-30 Series (Lycoming) Piper PA-31 Series (Lycoming) Piper PA-31P (Lycoming) Piper PA-32 Series (Lycoming) Piper PA-34 Series (Continental) Piper PA-34 Series (Lycoming) Piper PA-36 Series (Continental) Piper PA-36 Series (Lycoming) Piper PA-38 Series (Lycoming) Piper PA-39/40 Series (Lycoming) Piper PA-44 Series (Lycoming) Piper PA-46 Series (Continental) Piper PA-46 Series (Lycoming)
Polskie Zakłady Lotnicze Sp. z o. o.	PZL M 18 (PZL) PZL M 26 (Lycoming)
PZL MIELEC	PZL-M20 (PZL)
REGAL AIR, INC	REGAL AIR 305 Series (Continental)
REVO, Inc	REVO C/LA-4 Series (Lycoming)
RUAG AEROSPACE Services GmbH	Do 28 Series (Lycoming)
S.C.Constructii Aeronautice S.A	IAR-46 (Rotax)
SCHEIBE Flugzeugbau	SF 23 Series (Continental)
SEASTAR CORP	TSC Series (Lycoming)
SKY INTERNATIONAL	Aviat Husky A (Lycoming) Pitts S-1 Series (Lycoming) Pitts S-2 Series (Lycoming)
Skyfox Aviation Ltd	CA25 Series (Rotax)
SLINGSBY Aviation	Slingsby T67 (Lycoming) Slingsby T67A/T67B/T67C/T67M Series (Lycoming)
SOCATA	Grumman GA-7 (Lycoming) SOCATA MS 881 (Potez) SOCATA MS 894/PZL Koliber (Franklin) SOCATA Rallye Series (Continental) SOCATA Rallye Series (Lycoming) SOCATA TB Series (Lycoming)
STOL AIRCRAFT Corporation	Republic UC-1 (Lycoming)
SUKHOI	Sukhoi SU-29 (Vedeneyev) Sukhoi Su-29/31 (MGA) Sukhoi SU-31 (Vedeneyev)
SYMPHONY AIRCRAFT Industries	Symphony OMF-100-160 (Lycoming)
TAYLORCRAFT 2000	Taylorcraft 19 Series (Continental) Taylorcraft F21/F22 Series (Lycoming)
TECNAM Costruzioni Aeronautiche	Tecnam P2006T (Rotax) Tecnam P92 (Rotax) Tecnam P96/P2002/P2004 (Rotax)
THRUSH Aircraft	Ayres S2R (PW R-985)
TRUE FLIGHT Holdings	Grumman/American AA-1 Series (Lycoming) Grumman/American AA-5 Series (Lycoming)
TWIN COMMANDER AIRCRAFT Corporation	Commander 500 Series/680 Series (Lycoming) Commander 685 (Continental) Rockwell 700 (Lycoming)
VULCANAIR	Partenavia P.64 (Lycoming) Partenavia P.66 (Lycoming)

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Group 3: Piston-Engine Aeroplanes (Other than those in Group 1)

TC holder	Part-66 Type rating endorsement
	Partenavia P57 (Lycoming) Vulcanair F600A (Lycoming) Vulcanair P.68 Series (Lycoming)
WACO Aircraft Company	Waco YMF (Jacobs)
WASSMER	CERVA CE43 (Lycoming) CERVA CE44 (Continental) WA4/21 Series (Lycoming) WA40 Series (Lycoming) WA41 (Lycoming)
XtremeAir GmbH	XtremeAir XA42 (Lycoming)
YAKOVLEV	Yakovlev YAK-18T (Vedeneyev)
ZLIN AIRCRAFT (MORAVAN AVIATION)	Zlin Z-143 L (Lycoming) Zlin Z-242 L (Lycoming) Zlin Z-26 Series (Walter Minor/AVIA) Zlin Z-42 Series (LOM) Zlin Z-43 (LOM) Zlin Z-50 (LOM) Zlin Z-50L Series (Lycoming) Zlin Z-526 L (Lycoming)

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AMC to Part-66: Appendix II Aircraft Type Practical Experience and On-the-Job Training - List of Tasks

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List of Tasks

Time limits/Maintenance checks

100 hour check (general aviation aircraft).

“B” or “C” check (transport category aircraft).

Assist carrying out a scheduled maintenance check i.a.w. AMM.

Review aircraft maintenance log for correct completion.

Review records for compliance with Airworthiness Directives.

Review records for compliance with component life limits.

Procedure for inspection following heavy landing.

Procedure for inspection following lightning strike.

Dimensions/Areas

Locate component(s) by zone/station number.

Perform symmetry check.

Lifting and Shoring

Assist in:

Jack aircraft nose or tail wheel.

Jack complete aircraft.

Sling or trestle major component.

Levelling/Weighing

Level aircraft.

Weigh aircraft.

Prepare weight and balance amendment.

Check aircraft against equipment list.

Towing and Taxiing

Prepare for aircraft towing.

Tow aircraft.

Be part of aircraft towing team.

Parking and Mooring

Tie down aircraft.

List of Tasks

Park, secure and cover aircraft.

Position aircraft in maintenance dock.

Secure rotor blades.

Placards and Markings

Check aircraft for correct placards.

Check aircraft for correct markings.

Servicing

Refuel aircraft.

Defuel aircraft.

Carry out tank to tank fuel transfer.

Check/adjust tire pressures.

Check/replenish oil level.

Check/replenish hydraulic fluid level.

Check/replenish accumulator pressure.

Charge pneumatic system.

Grease aircraft.

Connect ground power.

Service toilet/potable water system.

Perform preflight/daily check.

Vibration and Noise Analysis

Analyse helicopter vibration problem.

Analyse noise spectrum.

Analyse engine vibration.

Air Conditioning

Replace combustion heater.

Replace flow control valve.

Replace outflow valve.

Replace safety valve.

Replace vapour cycle unit.

Replace air cycle unit.

Replace cabin blower.

Replace heat exchanger.

Replace pressurisation controller.

List of Tasks

Clean outflow valves.

Deactivate/reactivate cargo isolation valve.

Deactivate/reactivate avionics ventilation components.

Check operation of air conditioning/heating system.

Check operation of pressurisation system.

Troubleshoot faulty system.

Auto flight

Install servos.

Rig bridle cables.

Replace controller.

Replace amplifier.

Replacement of the auto flight system LRUs in case of fly-by-wire aircraft.

Check operation of auto-pilot.

Check operation of auto-throttle/auto-thrust.

Check operation of yaw damper.

Check and adjust servo clutch.

Perform autopilot gain adjustments.

Perform mach trim functional check.

Troubleshoot faulty system.

Check autoland system.

Check flight management systems.

Check stability augmentation system.

Communications

Replace VHF com unit.

Replace HF com unit.

Replace existing antenna.

Replace static discharge wicks.

Check operation of radios.

Perform antenna VSWR check.

Perform Selcal operational check.

Perform operational check of passenger address system.

Functionally check audio integrating system.

Repair coaxial cable.

Troubleshoot faulty system.

List of Tasks

Electrical Power

Charge lead/acid battery.

Charge Ni-Cad battery.

Check battery capacity.

Deep-cycle Ni-Cad battery.

Replace integrated drive/generator/alternator.

Replace switches.

Replace circuit breakers.

Adjust voltage regulator.

Change voltage regulator.

Amend electrical load analysis report.

Repair/replace electrical feeder cable.

Troubleshoot faulty system.

Perform functional check of integrated drive/generator/alternator.

Perform functional check of voltage regulator.

Perform functional check of emergency generation system.

Equipment/Furnishings

Replace carpets.

Replace crew seats.

Replace passenger seats.

Check inertia reels.

Check seats/belts for security.

Check emergency equipment.

Check ELT for compliance with regulations.

Repair toilet waste container.

Remove and install ceiling and sidewall panels.

Repair upholstery.

Change cabin configuration.

Replace cargo loading system actuator.

Test cargo loading system.

Replace escape slides/ropes.

Fire protection

Check fire bottle contents.

Check/test operation of fire/smoke detection and warning system.

Check cabin fire extinguisher contents.

List of Tasks

Check lavatory smoke detector system.

Check cargo panel sealing.

Install new fire bottle.

Replace fire bottle squib.

Troubleshoot faulty system.

Inspect engine fire wire detection systems.

Flight Controls

Inspect primary flight controls and related components i.a.w. AMM.

Extending/retracting flaps & slats.

Replace horizontal stabiliser.

Replace spoiler/lift damper.

Replace elevator.

Deactivation/reactivation of aileron servo control.

Replace aileron.

Replace rudder.

Replace trim tabs.

Install control cable and fittings.

Replace slats.

Replace flaps.

Replace powered flying control unit.

Replace flat actuator.

Rig primary flight controls.

Adjust trim tab.

Adjust control cable tension.

Check control range and direction of movement.

Check for correct assembly and locking.

Troubleshoot faulty system.

Functional test of primary flight controls.

Functional test of flap system.

Operational test of the side stick assembly.

Operational test of the THS.

THS system wear check.

Fuel

Water drain system (operation).

Replace booster pump.

List of Tasks

Replace fuel selector.
Replace fuel tank cells.
Replace/test fuel control valves.
Replace magnetic fuel level indicators.
Replace water drain valve.
Check/calculate fuel contents manually.
Check filters.
Flow check system.
Check calibration of fuel quantity gauges.
Check operation feed/selectors.
Check operation of fuel dump/jettison system.
Fuel transfer between tanks.
Pressure defuel.
Pressure refuel (manual control).
Deactivation/reactivation of the fuel valves (transfer defuel, X-feed, refuel).
Troubleshoot faulty system.

Hydraulics

Replace engine-driven pump.
Check/replace case drain filter.
Replace standby pump.
Replace hydraulic motor pump/generator.
Replace accumulator.
Check operation of shut off valve.
Check filters/clog indicators.
Check indicating systems.
Perform functional checks.
Pressurisation/depressurisation of the hydraulic system.
Power Transfer Unit (PTU) operation.
Replacement of PTU.
Troubleshoot faulty system.

Ice and rain protection

Replace pump.
Replace timer.
Inspect repair propeller deice boot.
Test propeller de-icing system.

List of Tasks

Inspect/test wing leading edge de-icer boot.

Replace anti-ice/deice valve.

Install wiper motor.

Check operation of systems.

Operational test of the pitot-probe ice protection.

Operational test of the TAT ice protection.

Operational test of the wing ice protection system.

Assistance to the operational test of the engine air-intake ice protection (with engines operating).

Troubleshoot faulty system.

Indicating/recording systems

Replace flight data recorder.

Replace cockpit voice recorder.

Replace clock.

Replace master caution unit.

Replace FDR.

Perform FDR data retrieval.

Troubleshoot faulty system.

Implement ESDS procedures.

Inspect for HIRF requirements.

Start/stop EIS procedure.

Bite test of the CFDIU.

Ground scanning of the central warning system.

Landing Gear

Build up wheel.

Replace main wheel.

Replace nose wheel.

Replace steering actuator.

Replace truck tilt actuator.

Replace gear retraction actuator.

Replace uplock/downlock assembly.

Replace shimmy damper.

Rig nose wheel steering.

Functional test of the nose wheel steering system.

Replace shock strut seals.

List of Tasks

Servicing of shock strut.
Replace brake unit.
Replace brake control valve.
Bleed brakes.
Replace brake fan.
Test anti skid unit.
Test gear retraction.
Change bungees.
Adjust micro switches/sensors.
Charge struts with oil and air.
Troubleshoot faulty system.
Test auto-brake system.
Replace rotorcraft skids.
Replace rotorcraft skid shoes.
Pack and check floats.
Flotation equipment.
Check/test emergency blowdown (emergency landing gear extension).
Operational test of the landing gear doors.

Lights

Repair/replace rotating beacon.
Repair/replace landing lights.
Repair/replace navigation lights.
Repair/replace interior lights.
Replace ice inspection lights.
Repair/replace logo lights.
Repair/replace emergency lighting system.
Perform emergency lighting system checks.
Troubleshoot faulty system.

Navigation

Calibrate magnetic direction indicator.
Replace airspeed indicator.
Replace altimeter.
Replace air data computer.
Replace VOR unit.
Replace ADI.

List of Tasks

Replace HSI.

Check pitot static system for leaks.

Check operation of directional gyro.

Functional check weather radar.

Functional check doppler.

Functional check TCAS.

Functional check DME.

Functional check ATC Transponder.

Functional check flight director system.

Functional check inertial nav system.

Complete quadrantal error correction of ADF system.

Update flight management system database.

Check calibration of pitot static instruments.

Check calibration of pressure altitude reporting system.

Troubleshoot faulty system.

Check marker systems.

Compass replacement direct/indirect.

Check Satcom.

Check GPS.

Test AVM.

Oxygen

Inspect on-board oxygen equipment.

Purge and recharge oxygen system.

Replace regulator.

Replace oxygen generator.

Test crew oxygen system.

Perform auto oxygen system deployment check.

Troubleshoot faulty system.

Pneumatic systems

Replace filter.

Replace air shut off valve.

Replace pressure regulating valve.

Replace compressor.

Recharge dessicator.

Adjust regulator.

List of Tasks

Check for leaks.

Troubleshoot faulty system.

Vacuum systems

Inspect the vacuum system i.a.w. AMM.

Replace vacuum pump.

Check/replace filters.

Adjust regulator.

Troubleshoot faulty system.

Water/Waste

Replace water pump.

Replace tap.

Replace toilet pump.

Perform water heater functional check.

Troubleshoot faulty system.

Inspect waste bin flap closure.

Central Maintenance System

Retrieve data from CMU.

Replace CMU.

Perform Bite check.

Troubleshoot faulty system.

Structures

Assessment of damage.

Sheet metal repair.

Fibre glass repair.

Wooden repair.

Fabric repair.

Recover fabric control surface.

Treat corrosion.

Apply protective treatment.

Doors

Inspect passenger door i.a.w. AMM.

Rig/adjust locking mechanism.

List of Tasks

Adjust air stair system.
Check operation of emergency exits.
Test door warning system.
Troubleshoot faulty system.
Remove and install passenger door i.a.w. AMM.
Remove and install emergency exit i.a.w. AMM.
Inspect cargo door i.a.w. AMM.

Windows

Replace windshield.
Replace direct vision window.
Replace cabin window.
Repair transparency.

Wings

Skin repair.
Recover fabric wing.
Replace tip.
Replace rib.
Replace integral fuel tank panel.
Check incidence/rig.

Propeller

Assemble prop after transportation.
Replace propeller.
Replace governor.
Adjust governor.
Perform static functional checks.
Check operation during ground run.
Check track.
Check setting of micro switches.
Assessment of blade damage i.a.w. AMM.
Dynamically balance prop.
Troubleshoot faulty system.

Main Rotors

Install rotor assembly.

List of Tasks

Replace blades.

Replace damper assembly.

Check track.

Check static balance.

Check dynamic balance.

Troubleshoot.

Rotor Drive

Replace mast.

Replace drive coupling.

Replace clutch/freewheel unit.

Replace drive belt.

Install main gearbox.

Overhaul main gearbox.

Check gearbox chip detectors.

Tail Rotors

Install rotor assembly.

Replace blades.

Troubleshoot.

Tail Rotor Drive

Replace bevel gearbox.

Replace universal joints.

Overhaul bevel gearbox.

Install drive assembly.

Check chip detectors.

Check/install bearings and hangers.

Check/service/assemble flexible couplings.

Check alignment of drive shafts.

Install and rig drive shafts.

Rotorcraft flight controls

Install swash plate.

Install mixing box.

Adjust pitch links.

Rig collective system.

List of Tasks

Rig cyclic system.

Rig anti-torque system.

Check controls for assembly and locking.

Check controls for operation and sense.

Troubleshoot faulty system.

Power Plant

Build up ECU.

Replace engine.

Repair cooling baffles.

Repair cowling.

Adjust cowl flaps.

Repair faulty wiring.

Troubleshoot.

Assist in dry motoring check.

Assist in wet motoring check.

Assist in engine start (manual mode).

Piston Engines

Remove/install reduction gear.

Check crankshaft run-out.

Check tappet clearance.

Check compression.

Extract broken stud.

Install helicoil.

Perform ground run.

Establish/check reference RPM.

Troubleshoot.

Turbine Engines

Replace module.

Replace fan blade.

Hot section inspection/borescope check.

Carry out engine/compressor wash.

Carry out engine dry cycle.

Engine ground run.

Establish reference power.

List of Tasks

Trend monitoring/gas path analysis.

Troubleshoot.

Fuel and control, piston

Replace engine driven pump.

Adjust AMC.

Adjust ABC.

Install carburettor/injector.

Adjust carburettor/injector.

Clean injector nozzles.

Replace primer line.

Check carburettor float setting.

Troubleshoot faulty system.

Fuel and control, turbine

Replace FCU.

Replace Engine Electronic Control Unit (FADEC).

Replace Fuel Metering Unit (FADEC).

Replace engine driven pump.

Clean/test fuel nozzles.

Clean/replace filters.

Adjust FCU.

Troubleshoot faulty system.

Functional test of FADEC.

Ignition systems, piston

Change magneto.

Change ignition vibrator.

Change plugs.

Test plugs.

Check H.T. leads.

Install new leads.

Check timing.

Check system bonding.

Troubleshoot faulty system.

Ignition systems, turbine

List of Tasks

Perform functional test of the ignition system.

Check glow plugs/ignitors.

Check H.T. leads.

Check ignition unit.

Replace ignition unit.

Troubleshoot faulty system.

Engine Controls

Rig thrust lever.

Rig RPM control.

Rig mixture HP cock lever.

Rig power lever.

Check control sync (multi-eng).

Check controls for correct assembly and locking.

Check controls for range and direction of movement.

Adjust pedestal micro-switches.

Troubleshoot faulty system.

Engine Indicating

Replace engine instruments(s).

Replace oil temperature bulb.

Replace thermocouples.

Check calibration.

Troubleshoot faulty system.

Exhaust, piston

Replace exhaust gasket.

Inspect welded repair.

Pressure check cabin heater muff.

Troubleshoot faulty system.

Exhaust, turbine

Change jet pipe.

Change shroud assembly.

Install trimmers.

Inspect/replace thrust reverser.

Replace thrust reverser component.

List of Tasks

Deactivate/reactivate thrust reverser.

Operational test of the thrust reverser system.

Oil

Change oil.

Check filter(s).

Adjust pressure relief valve.

Replace oil tank.

Replace oil pump.

Replace oil cooler.

Replace firewall shut off valve.

Perform oil dilution test.

Troubleshoot faulty system.

Starting

Replace starter.

Replace start relay.

Replace start control valve.

Check cranking speed.

Troubleshoot faulty system.

Turbines, piston engines

Replace PRT.

Replace turbo-blower.

Replace heat shields.

Replace waste gate.

Adjust density controller.

Engine water injection

Replace water/methanol pump.

Flow check water/methanol system.

Adjust water/methanol control unit.

Check fluid for quality.

Troubleshoot faulty system

Accessory gear boxes

Replace gearbox.

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List of Tasks

Replace drive shaft.

Inspect magnetic chip detector.

APU

Removal/installation of the APU.

Removal/installation of the inlet guide-vane actuator.

Operational test of the APU emergency shut-down test.

Operational test of the APU.

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AMC to Part-66: Appendix III Evaluation of the competence assessment and assessors

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This Appendix applies to the competence assessment performed by the designated assessors (and their qualifications).

1) What does “competence” mean and areas of focus for assessment

The assessment should aim at measuring the competence by evaluating three major factors associated to the learning objectives:

- Knowledge;
- Skills;
- Attitude.

Generally, knowledge is evaluated by examination. The purpose of this document is not to describe the examination process: this material mainly addresses the evaluation of “skills” and “attitude” after training containing practical elements. Nevertheless, the trainee needs to demonstrate sufficient knowledge to perform the required tasks.

“Attitude” is indivisible from the “skill” as this greatly contributes to the safe performance of the tasks.

The evaluation of the competence should be based on the learning objectives of the training, in particular:

- the (observable) desired performance. This covers what the trainee is expected to be able to do and how the trainee is expected to behave at the end of the training;
- the (measurable) performance standard that must be attained to confirm the trainee’s level of competence in the form of tolerances, constraints, limits, performance rates or qualitative statements; and
- the conditions under which the trainee will demonstrate competence. Conditions consist of the training methods, the environmental, situational and regulatory factors.

The assessment should focus on the competencies relevant to the aircraft type and its maintenance including, but not limited to:

- Environmental awareness (act safely, apply safety precautions and prevent dangerous situations);
- Systems integration (demonstrate understanding of aircraft systems interaction – identify, describe, explain, plan, execute);
- Knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by Part 66 Appendix I, practical training elements that cannot be imparted through simulation devices, etc.);
- Using reports and indications (the ability to read and interpret);
- Aircraft documentation finding and handling (identify the appropriate aircraft documentation, navigate, execute and obey the prescribed maintenance procedures);
- Perform maintenance actions (demonstrate safe handling of aircraft, engines, components and tools);
- Aircraft final/close-up and report (apply close up, initiate appropriate actions/follow-up/records of testing, establish and sign maintenance records/logbooks).

2) How to assess

As far as feasible, the objectives of the assessment should be associated with the learning objectives and the passing level; it means that observable criteria should be set to measure the performance and should remain as objective as possible.

The general characteristics of effective assessment are: objective, flexible, acceptable, comprehensive, constructive, organised and thoughtful. At the conclusion, the trainee should have no doubt about what he/she did well, what he/she did poorly and how he/she can improve.

The following is a non-exhaustive list of questions that may be posed to assist the assessment:

- What are the success factors for the job?
- What are typical characteristics of a correct behaviour for the task?
- What criteria should be observed?
- What level of expertise is expected?
- Is there any standard available?
- What is the pass mark? For example:
 - “Go-no go” situation;
 - How to allocate points? Minimum amount to succeed;
 - “Must know or execute” versus “Good to know or execute” versus “Don’t expect the candidate to be an expert”.
- Minimum or maximum time to achieve? Use time effectively and efficiently.
- What if the trainee fails? How many times is the trainee allowed to fail?
- When and how should the trainee be prepared for the assessment?
- What proportion of judgment by the instructor out of collaboration with the trainee is needed during the evaluation stage?

The assessment may be:

- diagnostic (prior to a course), formative (reorientate the course on areas where there is a need to reinforce) or summative (partial or final evaluation);
- performed task-by-task, as a group of tasks or as a final assessment.

One method might be an initial assessment to be performed by the trainee himself/herself, then discussing areas where the perceptions of the trainee’s performance by the assessors differ in order to:

- develop the self-assessment habits;
- make the assessment more acceptable and understandable to both parties.

A “box-ticking” exercise would be pointless. Experience has shown that assessment sheets have largely evolved over time into assessment of groups of “skills” because in practice such things eventually detracted from the training and assessment that it was intended to serve: evaluate at a point of time, encourage and orientate the training needs, improve safety and ultimately qualify people for their duties.

In addition, many other aspects should be appropriately considered during the assessment process such as stress and environmental conditions, difficulty of the test, history of evaluation (such as tangible progresses or sudden and unexpected poor performance made by the trainee), amount of time necessary to build competence, etc.

All these reasons place more emphasis on the assessor and highlight the function of the organisation’s approval.

3) Who should assess

In order to qualify, the assessor should:

- Be proficient and have sufficient experience or knowledge in:
 - human performance and safety culture;
 - the aircraft type (necessary to have the certifying staff privileges in case of CRS issuances);

- training/coaching/testing skills;
- instructional tools to use;
- Understand the objective and the content of the practical elements of the training that is being assessed;
- Have interpersonal skills to manage the assessment process (professionalism, sincerity objectivity and neutrality, analysis skills, sense of judgement, flexibility, capability of evaluating the supervisor's or instructor's reports, handling of trainee's reactions to failing assessment with the cultural environment, being constructive, etc.);
- Be ultimately designated by the organisation to carry out the assessment.

The roles may be combined for:

- the assessor and the instructor for the practical elements of the Type Rating Training;
- or
- the assessor and the supervisor for the On-the-Job Training

provided that the objectives associated with each role are clearly understood and that the competence and qualification criteria according to the company's procedures are met for both functions. Whenever possible (depending on the size of the organisation), it is recommended to split the roles (two different persons) in order to avoid any conflicts of interests.

When the functions are not combined, the role of each function should be clearly understood.

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