

রেজিস্টার্ড নং ডি এ-১

বাংলাদেশ



গেজেট

অতিরিক্ত সংখ্যা  
কর্তৃপক্ষ কর্তৃক প্রকাশিত

শনিবার, সেপ্টেম্বর ২৮, ২০২৪

[ বেসরকারি ব্যক্তি এবং কর্পোরেশন কর্তৃক অর্থের বিনিময়ে জারীকৃত বিজ্ঞাপন ও নোটিশসমূহ ]

**CIVIL AVIATION AUTHORITY OF BANGLADESH**

**GAZETTE**

Dhaka : 23 Boishakh 1431/06 May 2024

No. **CAAB 30.31.0000.114.61.002.24**—In exercise of the power conferred by section 47, read with section 14 of the Civil Aviation Act, 2017 (Act No. 18 of 2017), hereinafter referred as “Act”, the Chairman of the Civil Aviation Authority of Bangladesh is pleased to issue the following Air Navigation Order (ANO) Part-66 Aircraft Maintenance Licence.

2. It shall come into force from 01 July, 2024

**Air Vice Marshal M Mafidur Rahman**  
**BBP, BSP, BUP, ndu, afwc, psc**  
Chairman  
Civil Aviation Authority of Bangladesh.

(২৬৭৯৭)

মূল্য : টাকা ২২৪.০০

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**FOREWORD**

1. The Rule 39 of the Civil Aviation Rules 1984 describes the requirement for the issue of Licence for Aircraft Maintenance Engineer.
2. ANO Part-66, requirements for issuance of Aircraft Maintenance Licence has been developed to address issuance of licence of personnel involved in the maintenance of aircraft, and components intended for fitment thereto. ANO Part-66 has been divided in four chapters:  
  
Chapter 1: Regulations & Acceptable Means of Compliance (Section A)  
  
Chapter 2: Procedures for CAAB & Acceptable Means of Compliance (Section B)  
  
Chapter 3: Appendices  
  
Chapter 4: Appendices to AMCs
3. The Civil Aviation Authority of Bangladesh have agreed to adopt Part-66 in to their national codes with National Variants and that they should not unilaterally initiate amendment of their national codes without having made a proposal for amendment of SARI Part-66 in accordance with the agreed procedure.
4. ANO Part-66 has been issued with National Variants presented in Italic letters.
5. Definitions and abbreviations of terms used in ANO Part-66 that are specific to this Part are given in Part 66.A.2 and respective paragraphs of the Part.
6. Section B of this Part deals with Standard Operating Procedures of Civil Aviation Authority, Bangladesh.
7. Future development of the requirements of Part-66 will be in accordance with the Notice of Proposed Amendment (NPA) procedures agreed among Member States of SARI ((usually) after industry consultation). This procedure will allow for the amendment of Part-66 to include provision for changes to be made with amendments to ICAO SARPS.
8. Amendments to the text in Part-66 are issued as amendment pages containing revised paragraphs, following NPA adoption.

9. New, amended and corrected text will be enclosed within heavy brackets until a subsequent 'Amendment' is issued.

The editing practices used in this document are as follows:

- (a) 'Shall' is used to indicate a mandatory requirement and may appear in this Part.
  - (b) 'Should' is used to indicate a recommendation and normally appears in AMCs and GM.
  - (c) 'May' is used to indicate discretion by the Authority, the industry or the applicant, as appropriate.
  - (d) 'Will' indicates a mandatory requirement and is used to advise industry of action incumbent on the Authority.
  - (e) Aircraft Maintenance Licence means 'Aircraft Maintenance Engineer Licence'.
  - (f) CAA-B NV indicates national variants of Civil Aviation Authority, Bangladesh.
10. The use of the male gender implies the female gender and vice versa.
11. This ANO is issued under the provisions of Rule 4 of the Civil Aviation Rules 1984 and ANO Part-66 Issue 3 will be effective from the date of approval.

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[illegible]

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## **CHAPTER 1**

### **REGULATIONS & ACCEPTABLE MEANS OF COMPLIANCE**

#### **(SECTION A)**

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**SUBPART A****AIRCRAFT MAINTENANCE LICENCE AEROPLANES AND  
HELICOPTERS****66.A.1 Scope**

- (a) This section defines the aircraft maintenance licence and establishes the requirements for application, and continuation of its validity.

**66.A.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) "Large Aircraft" means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5700 kg, or a multi-engine helicopter;
- (f) "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;
- (g) "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 within the territory of Bangladesh.
- (h) "pre-flight inspection" means the inspection carried out before flight to ensure that the aircraft is fit for the intended flight.

**66.A.3 Licence categories**

- (a) Aircraft maintenance license includes:
  - Category A
  - Category B1
  - Category B2
  - Category B3
  - Category C
- (b) Categories A and B1 are subdivided into subcategories relative to combinations of aero planes, helicopters, turbine and piston engines. The subcategories are:
  - A1 and B1.1 Aeroplanes Turbine
  - A2 and B1.2 Aeroplane Piston
  - A3 and B1.3 Helicopters Turbine
  - A4 and B1.4 Helicopters Piston

- (c) Category B2

The B2 licence is applicable to all aircraft.

- (d) Category B2L

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

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

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

- (e) Categories B3

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

- (f) (Reserved)

- (g) Category C

The C licence is applicable to aeroplanes and helicopters.

**GM 66.A.3 Licence categories**

Individual aircraft maintenance licence holders need to be restricted to a single category, provided that each qualification requirement is satisfied, any combination of categories may be granted.

For the B2L licence, a ‘system rating’ is a rating which gives privileges to release maintenance on the aircraft systems covered by the ‘system rating’ and electrical systems.

The sentence ‘shall contain, as a minimum, one system rating’ refers to the fact that the application for a B2L licence should be made for any of the system ratings or any combination of the system ratings specified in 66.A.3.

There is no specific order in which the system ratings should be applied for. Any combination of system ratings is possible.

The description of systems covered by the different system ratings is provided in Appendix I ‘Basic Knowledge Requirements’ under paragraph ‘2. Modularisation’, subparagraph related to ‘Categories B2 and B2L’.

**66.A.5 Aircraft groups**

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

1. Group 1: complex motor-powered aircraft, helicopters with multiple engines, aeroplanes with maximum certified operating altitude exceeding FL290, aircraft equipped with fly-by-wire systems and other aircraft requiring an aircraft type rating when defined as such by the CAAB. The CAAB may decide to classify into Group 2 or Group 3 as appropriate, an aircraft which meets the conditions set out in the first subparagraph, if it considers that the lower complexity of the particular aircraft justifies so.
2. Group 2: aircraft other than those in Group 1 belonging to the following subgroups:
  - Sub-group 2a : — single turbo-propeller engine aeroplanes
  - those turbojet and multiple-turboprop aeroplanes classified by the CAAB in this subgroup because of their lower complexity.
  - Sub-group 2b:
  - single turbine engine helicopters,



- those multiple turbine engine helicopters classified by the CAAB in this subgroup because of their lower complexity.
  - Sub-group 2c:
    - single piston engine helicopters,
    - those multiple piston engine helicopters classified by the CAAB in this subgroup because of their lower complexity.
3. Group 3: piston engine aeroplanes other than those in Group 1.

#### GM 66.A.5 Aircraft groups

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

| Category/subcategory<br>Groups   | A, B1<br>and C | B2 | B2L | B3 |
|--|----------------|----|-----|----|
| 1<br>— Complex motor-powered aircraft<br>— Multi-engine helicopters<br>— other than piston-engine aeroplanes above FL290<br>— Aircraft with fly-by-wire systems<br>— Any other aircraft when defined by the Agency | X              | X  |     |    |
| 2<br>2a: Single-turboprop aeroplanes<br>2b: Single-turbine helicopters<br>2c: Single-piston-engine helicopters   | X              | X  | X   |    |
| 3<br>— Piston-engine aeroplanes  | X              | X  | X   |    |

#### 66.A.10 Application

- (a) An application for an aircraft maintenance licence or change to such licence shall be made on a CAAB Form 19 in a manner established by CAAB and submitted thereto.
- (b) An application for the change to an aircraft maintenance licence shall be made to the CAAB that issued the aircraft maintenance licence.

- (c) In addition to the documents required in points 66.A.10 (a), 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 CAAB together with the CAAB Form 19.
- (d) Reserved
- (e) Reserved
- (f) Each application shall be supported by documentation to demonstrate compliance with the applicable theoretical knowledge, practical training and experience requirements at the time of application.

#### **AMC 66.A.10 Application**

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 log book of maintenance experience is desirable and CAAB may require such log books to be kept. It is acceptable to cross refer in the CAAB Form 19 to other documents containing information on maintenance.
2. Applicants claiming the maximum reduction in Part 66.A.30(a) total experience based upon having successfully completed CAAB approved basic training, should include the ANO Part-147 certificate of recognition for approved basic training.
3. Applicants claiming reduction in Part 66.A.30(a) total experience based upon having successfully completed technical training in an organisation or institute recognised by CAAB as a competent organisation or institute, should include the relevant certificate of successful completion of training.

#### **GM 66.A.10(a) Application**

When an application is made for a licence in the B2L category, the applicant should specify on the CAAB Form 19:

- the system rating or the combination of system ratings the applicant applies for; and
- the aircraft rating,

considering that according to 66.A.45(e), a B2L licence endorsed with full subgroup 2b can be endorsed also with full subgroup 2c.

When applying for the addition of a system rating on a B2L licence, the applicant should provide together with the application, the demonstration of compliance with the experience requirements related to the system the applicant applies for.

When a B2L licence holder applies for the extension of a B2L licence to add a new system rating, he/she needs to demonstrate the practical experience required by 66.A.30(a)(2a) for the system rating but also the practical experience required by 66.A.45(e) and (f) in case the aircraft group is different.

When a B2L licence holder applies for the change of his/her B2L licence to the B2 category, he/she needs only to:

- demonstrate by examination the differences between the basic knowledge corresponding to the B2L licence held and the basic knowledge of the B2 licence, as described in Appendix I; and
- demonstrate the additional experience described in Appendix IV.

These requirements can be found also for the CAAB in 66.B.110.

When an applicant applies for the extension of his/her B2L licence to a B2 licence and he/she meets the relevant requirements, the B2L licence is replaced by the B2 licence.

#### **66.A.15 Eligibility**

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

The applicant shall have passed at least Higher Secondary (Science) Examination or its equivalent or has obtained a Diploma in relevant branch of Aircraft Maintenance Technology or Mechanical, Electrical, Power or Electronics Engineering.

#### **CAA-B NV 66.A.15**

#### **66.A.20 Privileges**

(a) The following privileges shall apply:

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

2. A category B1 aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B1 support staff following:
  - Maintenance performed on aircraft structure, powerplant and mechanical and electrical systems.
  - work on avionic systems requiring only simple tests to prove their serviceability and not requiring troubleshooting.

Category B1 includes the corresponding A subcategory.

3. A category B2 aircraft maintenance licence shall permit the holder:
  - (i) to issue certificates of release to service and to act as B2 support staff for following:
    - Maintenance performed on avionic and electrical systems, and
    - Electrical and avionics tasks within powerplant and mechanical systems, requiring only simple tests to prove their serviceability; and
  - (ii) to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the certification authorisation referred to in point 145.A.35 of Part-145. This certification privilege shall be restricted to work that the licence holder has personally performed in the maintenance organisation, which issued the certification authorisation and limited to the ratings already endorsed in the B2 licence.

The category B2 licence does not include any A subcategory.

4. A category B2L aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B2L support staff for the following:
  - maintenance performed on electrical systems;
  - maintenance performed on avionics systems within the limits of the system ratings specifically endorsed on the licence, and
  - when holding the ‘airframe system’ rating, performance of electrical and avionics tasks within power plant and mechanical systems, requiring only simple tests to prove their serviceability.

5. A category B3 aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B3 support staff for:
    - 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.
  6. Reserved.
  7. 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 in a Part-145 organisation.
- (b) The holder of an aircraft maintenance licence may not exercise certification privileges unless:
1. in compliance with the applicable requirements of Part-M and/or Part-145.
  2. in the preceding two-year period, he/she has, either had six 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.
  3. he/she has the adequate competence to certify maintenance on the corresponding aircraft; and
  4. he/she is able to read, write and communicate to an understandable level in the language(s) in which the technical documentation and procedures necessary to support the issue of the certificate of release to service are written.

#### **AMC 66.A.20(a)(4) Privileges**

‘Within the limits of the system ratings specifically endorsed on the licence’ refers to the fact that the privileges of the licence holder are limited:

- to the group/subgroup of aircraft endorsed on the licence, but also
- to the system rating(s) endorsed.

When an applicant wishes to get the privilege to issue certificates of release to service and to act as support staff for electrical and avionics tasks within powerplant and mechanical systems, he/she should apply for the rating ‘airframe system’ on the B2L licence. The reason is that the ‘airframe systems’ rating is the only rating which covers completely the electrical and avionics tasks of the powerplant and mechanical systems of the aircraft.

**GM 66.A.20(a) Privileges**

## 1. Then 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;
- Fly-by-Wire Systems (related to ATA27 "Flight Controls");
- Fibre Optic Control Systems.

**NOTE:**

Instruments are formally included within the privileges of the B2 and B2L with system rating 'instruments'. However, maintenance on electromechanical and pitot-static components may also be released by a B1 and B3 licence holder.

**Simple test** means a test described in approved maintenance data and meeting all the following criteria:

- 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.

**Trouble shooting** 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.

**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:

- 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 include internal structure, systems and powerplant items which are visible through quick opening access panels/doors;
- 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 CAAB will prescribe the conditions under which these tasks may be performed.

**\*\*\* Applicable from 1 July 2025. The definition for Line maintenance will be referred to AMC1 145.A.10**

**Base Maintenance (\*\*\*)** means any task falling outside the criteria are given above for Line Maintenance.

NOTE: 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.

**\*\*\* Applicable from 1 July 2025. The definition for Base maintenance will be referred to AMC1 145.A.10**

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-pressurized aeroplanes of 2000 Kg MTOM and below, within the limitations contained in the B3 licence.
3. Reserved
4. The privileges of the B2 licence with given aircraft ratings include the privileges of the B2L licence for all the system ratings for the same aircraft ratings. Nevertheless, the holder of a B2 licence with given aircraft ratings may apply for a B2L licence in order to include a different aircraft rating if the applicant only wants to demonstrate compliance with the experience requirements for certain system ratings.
5. 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, B2L 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, B2L 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, B2L and B3 qualifications may perform both roles in base maintenance.



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

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.

**1. Duration:**

Within an approved maintenance organization:

- 6 months continuous employment within the same organisation; or
- 6 months split up into different blocks, employed within the same or in different organisations.

The 6 months 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 Part-M, Para M.A.801(b) or the corresponding regulation issued by CAAB or as a combination hereof.

When a licence holder maintains and releases aircraft in accordance with Part-M, Para M.A.801(b), in certain circumstances this number of days may even be reduced by 50% when agreed in advance by CAAB. These circumstances consider the cases where the holder of a Part-66 licence 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 utilization, 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.

**2. Nature of Experience:**

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

- Servicing;
- Inspection;
- Operational and functional testing;
- Trouble-shooting;
- Repairing;
- Modifying;

- Changing component;
- Supervising these activities;
- Releasing aircraft to service.

For category A certifying staff, the experience should include exercising the privileges, by means of performing tasks related to the authorization on at least one aircraft type for each licence subcategory. This means tasks as mentioned in AMC 145.30(g), including servicing, component changes and simple defect rectifications.

For category B1, B2, B2L and B3, for every aircraft included in the authorization 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):

- (a) Propulsion systems (piston or turboprop or turbofan or turbo-shaft or jet-engine or push propellers); and
- (b) Flight control systems (only mechanical controls or hydro-mechanically powered controls or electro-mechanically powered controls); and
- (c) Avionic systems (analog systems or digital systems); and
- (d) Structure (manufactured of metal or composite or wood).

For licences endorsed with (sub) group ratings:

- In the case of B1 licence endorsed with group ratings (either manufacturer group or full group) as defined in Part 66.A.45(g) the holder may show experience on at least one aircraft type per group and per aircraft structure (metal, composite, wood).
- In the case of a B2 or B2L licence endorsed with (sub)group ratings (either manufacturer subgroup or full (sub)group) as defined in Part 66.A.45(g) the holder may show experience on at least one aircraft type per (sub)group.
- In the case of a B3 licence endorsed with the rating “piston-engine non-pressurized aeroplanes of 2000kg MTOM and below” as defined in 66.A.45, the holder should show experience on at least one aircraft type per aircraft structure (metal, composite, wooden).

For category C, the experience should cover at least one of the aircraft types endorsed on the authorization.

For a combination of categories, the experience should include some activities of the nature shown in paragraph 2 in each category.

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:

- Aircraft maintenance related training as an instructor/assessor or as a student;
- Maintenance technical support/engineering;
- Maintenance management/planning.

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

- (a) Date;
- (b) Aircraft type;
- (c) Aircraft identification i.e. registration;
- (d) ATA chapter (optional);
- (e) Operation performed i.e. 100 FH check, MLG wheel change, engine oil check and complement, SB embodiment, troubleshooting, structural repair, STC embodiment;
- (f) Type of maintenance i.e. base, line;
- (g) Type of activity i.e. perform, supervise, release;
- (h) Category used (A1, A2, A3, A4, B1.1, B1.2, B1.3, B1.4, B2, B2L, B3, C);
- (i) Duration in days or partial-days.

#### **GM 66.A.20(b)2 Privileges**

The sentence “met the provision for the issue of the appropriate privileges” 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.

**AMC 66.A.20(b)3 Privileges**

The wording “has the adequate competence to certify maintenance on the corresponding aircraft” 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.

This is typically the case, among others, in the following situations:

- 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 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 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 customer which may not have been covered by the type training / on-the- job training.
- Changes in the basic knowledge requirements of Appendix I to Part-66 not requiring re- examination 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.

Additional information is provided in AMC 145.A.35(a).

#### **GM 66.A.20(b)4 Privileges**

1. Holders of a Part-66 aircraft maintenance licence may not exercise certification privileges unless 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:
  - 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.
2. In all cases, the level of understanding should be compatible with the level of certification privileges exercised.

#### **66.A.25 Basic knowledge requirements**

- (a) An applicant for an aircraft maintenance licence or for the addition of a category or subcategory to such an aircraft maintenance licence shall demonstrate by examination a level of knowledge of the appropriate subject modules in accordance with Appendix I to this Part. The examination shall comply with the standard set out in Appendix II to this Part and shall be conducted either by a training organisation appropriately approved in accordance with ANO Part-147 or by CAAB.
- (b) Reserved
- (c) An applicant for an aircraft maintenance licence in category B2L for a particular 'system rating', or for the addition of another 'system rating', shall demonstrate by examination a level of knowledge of the

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

- (d) The training courses and examinations shall be passed within 10 (ten) 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 (e).
- (e) The applicant may apply to CAAB for full or partial examination credit to the basic knowledge requirements for:
  - 1. Basic knowledge examinations that do not meet the requirement described in point (b) above; and
  - 2. Any other technical qualification considered by CAAB to be equivalent to the knowledge standard of Part-66.

Credits shall be granted in accordance with Subpart E of Section B of this Part.

- (f) Credits expire 10 (ten) years after they were granted to the applicant by CAAB. The applicant may apply for new credits after expiration.

#### **AMC 66.A.25 Basic knowledge requirements**

- 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 will depend 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 will be credited where CAAB is satisfied that such knowledge and examinations are equivalent to that required by Appendix I to Part-66.

#### **GM 66.A.25(a) Basic knowledge requirements**

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, B2L and B3 should demonstrate a complete level of knowledge in the appropriate subject modules.

**GM 66.A.25(b) Reserved.****66.A.30 Basic Experience requirements**

- (a) An applicant for an aircraft maintenance licence shall have acquired:
1. For category A and subcategories B1.2 and B1.4 and category B3:
    - (i) three years of practical maintenance experience on operating aircraft, if the applicant has no previous relevant technical training; or
    - (ii) two years of practical maintenance experience on operating aircraft and completion of training considered relevant by CAAB as a skilled worker, in a technical trade; or
    - (iii) one year of practical maintenance experience on operating aircraft and completion of a basic training course in accordance with Part-147.
  2. For category B2 and subcategories B1.1 and B1.3:
    - (i) five years of practical maintenance experience on operating aircraft if the applicant has no previous relevant technical training; or
    - (ii) three years of practical maintenance experience on operating aircraft and completion of training considered relevant by CAAB as a skilled worker, in a technical trade; or
    - (iii) two years of practical maintenance experience on operating aircraft and completion of a basic training course approved in accordance with Part-147.
- 2a. For category B2L:
- (i) three years of practical maintenance experience in operating aircraft, covering the corresponding system rating(s), if the applicant has no previous relevant technical training; or
  - (ii) two years of practical maintenance experience in operating aircraft, covering the corresponding system rating(s), and completion of training, considered relevant by the CAAB, as a skilled worker in a technical trade; or
  - (iii) one year of practical maintenance experience in operating aircraft, covering the corresponding system rating(s), and completion of a Part-147 approved basic training course. For the addition of (a) new system rating(s) to an existing B2L licence, 3 months of practical maintenance experience relevant to the new system rating(s) shall be required for each system rating added.

**2b. Reserved.**

3. For category C with respect to large aircraft:
  - (i) three years of experience exercising category B1.1, B1.3 or B2 privileges on complex motor-powered aircraft or as support staff according to point 145.A.35, or, a combination of both; or
  - (ii) five years of experience exercising category B1.2 or B 1.4 privileges on complex motor-powered aircraft or as support staff according to point 145.A.35, or a combination of both;
4. For category C with respect to other than complex motor-powered aircraft: three years of experience exercising category B1 or B2 privileges on other than complex motor-powered aircraft or as support staff according to point 145.A.35, or a combination of both; or
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 CAAB, three years of experience working in a civil aircraft maintenance environment on a representative selection of tasks directly associated with aircraft maintenance including six months of observation of base maintenance tasks.
  - (b) An applicant for an extension to an aircraft maintenance licence shall have a minimum civil aircraft maintenance experience requirement appropriate to the additional category or subcategory of licence applied for as defined in Appendix IV to this Part.
  - (c) The experience must be practical which means being involved with a representative cross section of maintenance tasks on aircraft.
  - (d) At least one 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 one year, but shall be at least three months. The required experience shall be dependent upon the difference between the licence category/subcategory held and applied for. Such additional experience shall be typical of the new licence category/subcategory sought.
  - (e) Notwithstanding 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 CAAB. Additional experience of civil aircraft maintenance shall, however, be required to ensure adequate understanding of the civil aircraft maintenance environment.

- (f) Experience shall have been acquired within the ten years preceding the application for an aircraft maintenance licence or the addition of a category or subcategory to such a licence.

#### **AMC 66.A.30(a) Basic Experience requirements**

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 to a Part-66 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 to a category C holding a B1 or B2 licence demonstrate at least 12 months experience as a B1 or B2 base maintenance support staff.
3. A skilled worker is a person who has successfully completed a training acceptable to CAAB, 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:  
Means the experience of being involved in maintenance tasks on aircraft which are being operated by airlines, air taxi organisations, aero clubs, owners, etc. as relevant to the licence category/ subcategory;
  - 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, Part-M, Para M.A. Subpart F etc.) or under the supervision of independent certifying staff;
  - May be combined with Part-147 approved training (or other training approved by the CAAB) so that periods of training can be intermixed with periods of experience, similar to an apprenticeship.
  - may be full-time or part-time, either as professional or on a voluntary basis;

5. In the case of an applicant for a licence including several categories/subcategories, it is acceptable to combine the periods of experience as long as there is a sufficient experience for each category/subcategory during the required period. Examples:
- Application for a B1.1 (turbine aeroplanes) + B1.3 (turbine helicopters): The Regulation requires 5 years of experience for B1.1 and 5 years of experience for B1.3 for an applicant with no relevant previous technical training:
  - It is not acceptable to combine the experience in a single 5-year period where the applicant has been working for 3 years on turbine aeroplanes and 2 years on turbine helicopters.
  - However, it is acceptable to combine the experience in a single 5-year period if the applicant has been working for 5 years on turbine aeroplanes and turbine helicopters (for example, aeroplanes in the morning, helicopters in the afternoon, or a few days every week on aeroplanes and a few days every week on helicopters).
  - Application for a B1.1 (turbine aeroplanes) + B2 (avionics): The Regulation requires 5 years of experience for B1.1 and 5 years of experience for B2 for an applicant with no relevant previous technical training.
  - It is not acceptable to combine the experience in a single 5-year period where the applicant has been working for 3 years on turbine aeroplanes (with no avionics work) and 2 years on avionics systems.
  - However, it is acceptable to combine the experience in a single 5-year period if the applicant has been working for 5 years on structures, powerplant, mechanical and electrical systems and avionics (for B1.1 tasks in the morning, B2 tasks in the afternoon, or a few days every week for B1.1 tasks and a few days every week for B2 tasks).
  - Application for a B1.1, B1.2, B1.3, B1.4 and B2: The Regulation requires 5 years of experience for B1.1, B1.3 and B2 and 3 years of experience for B1.2 and B1.4 for an applicant with no relevant previous technical training.
  - In this case, it is very unlikely that the experience for each category/subcategory would be sufficient.

**AMC 66.A.30(c) Basic Experience requirements**

In the case of the category B2L licence, the sentence ‘a representative cross section of maintenance tasks on aircraft’ refers to the person that has carried out some maintenance tasks that are representative of the systems corresponding to the system ratings for which he/she applies (see 66.A.3). These tasks may include troubleshooting, modifications or repairs.

**AMC 66.A.30(d) Basic Experience requirements**

To be considered as recent experience, at least 50% of the required 12 months experience should be gained within the 12 months period prior to the date of application for the Part-66 aircraft maintenance licence. The remainder of the experience should have been gained within the 7 years 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).

**AMC 66.A.30(e) Basic Experience requirements**

1. For category A, the additional experience of civil aircraft maintenance should be a minimum of 6 months in a civil aircraft maintenance environment. For category B1, B2, B2L or B3, the additional experience of civil aircraft maintenance should be a minimum of 12 months in a civil aircraft maintenance environment.
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.

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

- (a) The aircraft maintenance licence becomes invalid five year after its last issue or change unless the holder submits his/her aircraft maintenance licence to CAAB, in order to verify that the information contained in the licence is the same as that contained in CAAB records, pursuant to point 66.B.120.
- (b) The holder of an aircraft maintenance licence shall complete the relevant parts of the CAAB Form 19 (See Appendix V) and submit it with the holder’s copy of the licence to CAAB, unless the holder works in a maintenance organisation approved in accordance with Part-145 that has a procedure in its exposition whereby such organisation may submit the necessary documentation on behalf of the aircraft maintenance licence holder.

- (c) Any certification privilege based upon an aircraft maintenance licence becomes invalid as soon as the aircraft maintenance licence is invalid.
- (d) The aircraft maintenance licence is only valid (i) when issued and/or changed by CAAB and  
(ii) when the holder has signed the document.

#### **GM 66.A.40 Continued validity of the aircraft maintenance licence**

Validity of the Part-66 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)

#### **66.A.45 Endorsement with aircraft ratings**

- (a) In order to be entitled to exercise certification privileges on a specific aircraft type, the holder of an aircraft maintenance licence needs to have his/her licence endorsed with the relevant aircraft ratings.
  - For category B1, B2 or C the relevant aircraft ratings are the following:
    - (i) For Group 1 aircraft, the appropriate aircraft type rating.
    - (ii) For Group 2 aircraft, the appropriate aircraft type rating, manufacturer sub-group rating or full sub-group rating.
    - (iii) For Group 3 aircraft, the appropriate aircraft type rating or full group rating.
  - For category B2L, the relevant aircraft ratings are the following:
    - (i) for Group 2 aircraft, the appropriate manufacturer subgroup rating or full subgroup rating;
    - (ii) for Group 3 aircraft, the full group rating;
  - For category B3, the relevant rating is “piston-engine non-pressurized aeroplanes of 2000 Kg MTOM and below”.
  - For category A, no rating is required, subject to compliance with the requirements of point 145.A.35 of Part-145.

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- (b) The endorsement of aircraft type ratings requires the satisfactory completion of one of the following:
- the relevant category B1, B2 or C aircraft type training in accordance with Appendix III to Part-66;
  - in the case of gas airship type ratings on a B2 licence, a type training approved by the CAAB in accordance with point 66.B.130.
- (c) For other than category C licences, 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 Part-66, except in the case of gas airships, where it shall be directly approved by the CAAB.
- (d) By derogation from points (b) and (c), for group 2 and 3 aircraft, aircraft type ratings may also be endorsed on a licence after completing the following steps:
- Satisfactory completion of the relevant category B1, B2 or C aircraft type examination described in Appendix III to this 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.
- 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.
- (e) For group 2 aircraft:
- (i) 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;
  - (ii) 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;

- (iii) The endorsement of manufacturer subgroup and full subgroup ratings for category B2 and B2L licence holders requires demonstration of practical experience which shall include a representative cross section of maintenance activities relevant to the licence category and to the applicable aircraft subgroup and, in the case of the B2L licence, relevant to the applicable system rating(s);
  - (iv) by derogation from point (e)(iii), the holder of a B2 or B2L licence, endorsed with a full subgroup 2b, is entitled to be endorsed with a full subgroup 2c.
- (f) For group 3 aircraft:
- (i) The endorsement of the full Group 3 rating for category B1, B2, B2L 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 Group 3, as applicable;
  - (ii) 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:
    - Pressurized aeroplanes
    - Metal structure aeroplanes
    - Composite structure aeroplanes
    - Wooden structure aeroplanes
    - Aeroplanes with metal tubing structure covered with fabric.
  - (iii) by derogation from point (f)(i), the holder of a B2L licence, endorsed with a full subgroup 2a or 2b, is entitled to be endorsed with Groups 3.
- (g) For the B3 licence:
- (i) The endorsement of the rating “piston-engine non-pressurized aeroplanes of 2000 Kg MTOM and below” requires demonstration of practical experience, which shall include a representative cross-section of maintenance activities relevant to the licence category.
  - (ii) Unless the applicant provides evidence of appropriate experience, the rating referred to in point (i) shall be subject to the following limitations, which shall be endorsed on the licence:
    - Wooden structure aeroplanes

- Aeroplanes with metal tubing structure covered with fabric
- Metal structure aeroplanes
- Composite structure aeroplanes.

#### **GM 66.A.45 Endorsement with aircraft ratings**

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

The table contains the following:

- The different aircraft groups.
- For each licence (sub)category, which ratings are possible (at the choice of the applicant):
  - Individual type ratings.
  - Full and/or Manufacturer (sub)group ratings
- For each rating option, which are the qualification options.
- For the B1.2 licence (Group 3 aircraft) and for the B3 licence (piston-engine non-pressurized aeroplanes of 2000 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.

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.

| <b>Aircraft rating requirements</b>   |  |  |  |
|---|--|--|--|
| <b>Aircraft Groups</b>  | <b>B1/B3 licence</b>   | <b>B2/B2L licence</b>  | <b>C licence</b>   |
| <b>Group 1</b> <ul style="list-style-type: none"> <li>• Complex motorpowered aircraft.</li> <li>Multiple engine helicopters.</li> <li>• Aeroplanes certified above FL290.</li> <li>• Aircraft equipped with fly-by-wire.</li> <li>• Other aircraft defined by CAAB</li> </ul> | <b>(For B1)</b><br><b>Individual TYPE RATING</b><br>Type training: <ul style="list-style-type: none"> <li>- Theory + examination</li> <li>- Practical + assessment</li> </ul> <b>PLUS</b><br>OJT (for first aircraft in licence subcategory) | <b>(For B2)</b><br><b>Individual TYPE RATING</b><br>Type training: <ul style="list-style-type: none"> <li>- Theory + examination</li> <li>- Practical + assessment</li> </ul> <b>PLUS</b><br>OJT (for first aircraft in licence subcategory) | <b>Individual TYPE RATING</b><br>Type training: <ul style="list-style-type: none"> <li>- Theory + examination</li> </ul> |
| <b>Group 2</b><br><b>Subgroups:</b><br><b>2a: single turboprop aeroplanes (*)</b>   | <b>(For B1.1, B1.3, B1.4)</b><br><b>Individual TYPE RATING</b> (type training + OJT) <b>or</b> (type examination + practical experience)   | <b>(For B2)</b><br><b>Individual TYPE RATING</b> (type training + OJT) <b>or</b> (type examination + practical experience)<br><b>(For B2 and B2L)</b>  | <b>Individual TYPE RATING</b> type training <b>or</b> type examination   |

|  |   |   |   |
|--|---|---|---|
| <b>2b: single turbine-engine helicopters (*)</b><br><b>2c: single piston-engine helicopters (*)</b><br>(*) Except those classified in Group 1. | <b>Full SUBGROUP RATING</b><br>(type training + OJT) <b>or</b> (type examination + practical experience) on at least 3 aircraft representative of that subgroup<br><br><b>Manufacturer SUBGROUP RATING</b><br>(type training + OJT) <b>or</b> (type examination + practical experience) on at least 2 aircraft representative of that manufacturer subgroup   | <b>Full SUBGROUP RATING</b><br>based on demonstration of practical experience<br><br><b>Manufacturer SUBGROUP RATING</b><br>based on demonstration of practical experience  | <b>Full SUBGROUP RATING</b><br>type training <b>or</b> type examination on at least 3 aircraft representative of that subgroup<br><br><b>Manufacturer SUBGROUP RATING</b><br>type training <b>or</b> type examination on at least 2 aircraft representative of that manufacturer subgroup |
| <b>Group 3</b><br><b>Piston engine aeroplanes</b><br>(except those classified in Group 1)  | <b>(For B1.2)</b><br><b>Individual TYPE RATING</b> (type training + OJT) <b>or</b> (type examination + practical experience)<br><br><b>Full GROUP 3 RATING</b><br>based on demonstration of practical experience<br><b>Limitations:</b> <ul style="list-style-type: none"> <li>• Pressurized aeroplanes</li> <li>• Metal aeroplanes</li> <li>• Composite aeroplanes</li> <li>• Wooden aeroplanes</li> <li>• Metal tubing &amp; fabric aeroplanes</li> </ul> | <b>(For B2)</b><br><b>Individual TYPE RATING</b> (type training + OJT) <b>or</b> (type examination + practical experience)<br><br><b>(For B2 and B2L)</b><br><b>Full GROUP 3 RATING</b><br>based on demonstration of appropriate experience | <b>Individual TYPE RATING</b> type training <b>or</b> type examination<br><br><b>Full GROUP 3 RATING</b><br>based on demonstration of practical experience  |
| <b>Piston engine non-pressurized</b><br><b>Aeroplanes of 2000 kg MTOM and below</b>  | <b>(For B3)</b><br><b>FULL RATING</b><br><b>"Piston engine non-pressurized aeroplanes of 2000 kg MTOM &amp; below"</b> based on demonstration of practical experience<br><b>Limitations:</b> <ul style="list-style-type: none"> <li>• Metal aeroplanes</li> <li>• Composite aeroplanes</li> <li>• Wooden aeroplanes</li> <li>• Metal tubing &amp; fabric aeroplanes</li> </ul>  | <b>This rating cannot be endorsed on a B2/B2L licence. These aircraft are already covered by the endorsement of ratings for Group 3 aircraft (see box above)</b>  | <b>This rating cannot be endorsed on a C licence. These aircraft are already covered by the endorsement of ratings for Group 3 aircraft (see box above)</b>   |



**GM 66.A.45(b) Endorsement with aircraft ratings**

An aircraft type rating includes all the aircraft models/variants listed in column 2 of Appendix I to AMC to Part-66.

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 Part-M, Para M.A.607(a), as applicable, before he/she exercises certification privileges.

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.

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

1. The ‘practical experience’ should cover a representative cross section including at least:
  - For categories B1, B2, B2L and B3: 50% of the tasks contained in Appendix II to the AMC relevant to the licence category and to the applicable aircraft type ratings or aircraft (sub)group ratings being endorsed;
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 log book 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.

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

1. For the granting of manufacturer subgroup ratings for Group 2 aircraft, for B1 and C licence holders, the sentence “at least two aircraft types from the same manufacturer which combined are representative of the applicable manufacturer subgroup” means that the selected aircraft types should cover

the technologies relevant to the manufacturer subgroup in the following areas:

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

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

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

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

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

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

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

3. For manufacturer subgroup ratings, the term “manufacturer” 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.

In the case of an aircraft rating where the type rating refers to a TC holder made of a combination of two 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.

As a consequence:

- 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.

**GM 66.A.45(h)2 Reserved**

**66.A.50 Limitations**

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

**AMC 66.A.50(b) Limitations**

- 1. The appropriate experience required to remove the limitations referred 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 CAAB, by theoretical and practical training provided by the manufacturer, as long as an assessment is further carried out and recorded by this manufacturer.
- 2. It may be acceptable to have this experience on just one aircraft type, provided this type is representative of the (sub)group in relation to the limitation being removed.
- 3. It is acceptable that this experience is gained in aircraft not covered by the Basic Regulation, provided that this experience is relevant and representative of the corresponding (sub)group. An example could be

the experience required to remove a limitation such as ‘aircraft with metal tubing structure covered with fabric’, which may be gained in ultralight aircraft (Annex I aircraft).

4. 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.

#### **66.A.55 Evidence of qualification**

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

#### **66.A.70 Conversion provisions**

- (a) The holder of a valid certifying staff qualification issued by CAAB, prior to the date of entry into force of this Part shall be issued an aircraft maintenance licence by CAAB without further examination subject to the conditions specified in Section B Subpart D.
- (b) A person undergoing a certifying staff qualification process valid in Bangladesh, prior to the date of entry into force of this Part may continue to be qualified. The holder of a certifying staff qualification gained following such qualification process shall be issued an aircraft maintenance licence by CAAB without further examination subject to the conditions specified in Section B Subpart D.
- (c) Where necessary, the aircraft maintenance licence shall contain technical limitations in accordance with point 66.A.50 to reflect the differences between (i) the scope of the certifying staff qualification valid in Bangladesh 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 Part-66.
- (d) 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 Bangladesh before the entry into force of this Regulation and the privileges of the converted Part-66 aircraft maintenance licence remain the same.

**GM 66.A.70 Conversion provisions**

1. As described in point 66.A.70, the conversion provisions apply to the holder of a certifying staff qualification valid in Bangladesh prior to the date of entry into force of Part-66. The sentence “the holder of a certifying staff qualification valid in Bangladesh” means any person who had a qualification valid in that State allowing that person the performance of activities identical to the privileges of “certifying staff”. 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.

This should not be mistaken with the responsibilities linked to the airworthiness review, which was performed at different periods (typically varying from 6 months to 3 years). This is an activity which is performed at very specific points of time and not after every maintenance activity. Since an airworthiness review 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 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.

2. The conversion applies to “certifying staff qualifications” such as, for example:
  - Holding a national licence (or completed the process to obtain such a national licence);
  - Having completed a qualification process defined by CAAB to become certifying staff;
  - Having completed the qualification requirements for certifying staff within a maintenance organisation, as defined in their procedures.

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:

- 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.).

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.

3. Reserved

4. Reserved

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, of 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 no need to compare with the Part-66 Appendix I and II standard, introducing only those limitations required in order to maintain the existing privileges.

#### **GM 66.A.70(c) Conversion provisions**

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 be issued a Part-66 aircraft maintenance licence in the B1 category with a limitation (exclusion) on electrical power systems. Other limitations may be necessary after comparison between the ANO(AW) Part-D syllabus and the ANO Part-66 syllabus.

For removal of limitations, refer to 66.A.50(c).

**GM 66.A.70(d) Conversion provisions**

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 2000 Kg MTOM, pressurized aircraft and aircraft equipped with retractable landing gear. This person would be issued a Part-66 aircraft maintenance licence in the B1.2 or B3 (sub)category with the following limitations (exclusions):

- Aircraft involved in commercial air transport (this limitation always exists);
- Aircraft above 2000 Kg MTOM;
- Pressurized aircraft;
- Aircraft equipped with retractable landing gear.

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 limited 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):

- Aircraft involved in commercial air transport (this limitation always exists);
- Aircraft other than a Cessna 172;
- Aircraft not owned by the licence holder.

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.

For removal of limitations, refer to 66.A.50(c).

## **CHAPTER 2**

### **PROCEDURES FOR CAAB & ACCEPTABLE MEANS OF COMPLIANCE**



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**SECTION B**  
**PROCEDURE FOR CAAB**

**SUBPART A**

**GENERAL**

**66.B.1 Scope**

This section establishes the procedures including the administrative requirements to be followed by CAAB in charge of the implementation and the enforcement of Section A of this Part.

**66.B.10 Civil Aviation Authority, Bangladesh**

(a) General

CAAB shall establish an adequate organisational structure for issuance, continuation, change, conversion, suspension or revocation of aircraft maintenance licences and ensure compliance with Part-66.

(b) Resources

CAAB shall be appropriately staffed to ensure the implementation of the requirements of this Part.

(c) Procedures

CAAB shall establish documented procedures detailing how compliance with this Part is accomplished. These procedures shall be reviewed and amended to ensure continued compliance.

**66.B.15 Acceptable Means of Compliance**

When the applicant for issuance, continuation, conversion, suspension or revocation of an aircraft maintenance licence uses the AMC of this Part CAAB shall consider the requirements of the rule as met.

**66.B.20 Record-keeping**

(a) CAAB shall establish a system of record-keeping that allows adequate traceability of the process to issue, revalidate, change, suspend or revoke each aircraft maintenance licence.

(b) The records shall include for each licence:

1. the application for an aircraft maintenance licence or change to that licence, including all supporting documentation;
2. a copy of the aircraft maintenance licence including any changes;

3. copies of all relevant correspondence;
  4. details of any exemption and enforcement actions;
  5. any report from other competent authorities relating to the aircraft maintenance licence holder;
  6. The records of examinations conducted by CAAB;
  7. The applicable conversion reports used for conversion;
  8. The applicable credit reports used for crediting;
- (c) Records referred to in points 1 to 5 of point (b) shall be kept at least five years after the end of the licence validity.
- (d) Records referred to in points 6, 7 and 8 of point (b) shall be kept for an unlimited period.

**AMC 66.B.20 Record-keeping**

1. The record-keeping system should ensure that all records are accessible whenever needed within a reasonable time. These records should be organized in a consistent way throughout CAAB (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.

**66.B.25 Reserved****66.B.30 Exemptions**

All exemptions granted in accordance with the applicable National Regulation shall be recorded and retained by CAAB.

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**SUBPART B****ISSUE OF AN AIRCRAFT MAINTENANCE LICENCE**

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

**66.B.100 Procedure for the issue of an aircraft maintenance licence by CAAB**

- (a) On receipt of CAAB Form 19 and any supporting documentation, CAAB shall verify CAAB Form 19 for completeness and ensure that the experience claimed meets the requirement of this Part.
- (b) CAAB 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 Part.
- (c) When having verified the identity and date of birth of the applicant and being satisfied that the applicant meets the standards of knowledge and experience required by this Part, CAAB shall issue the relevant aircraft maintenance licence to the applicant. The same information shall be kept on CAAB records file.
- (d) In the case where aircraft types or groups are endorsed at the time of the issuance of the first aircraft maintenance licence, the CAAB shall verify compliance with point 66.B.115.

**AMC 66.B.100 Procedure for the issue of an aircraft maintenance licence by CAAB**

- 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 CAAB 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 CAAB has recognised such non-civil aircraft maintenance experience. CAAB in 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 CAAB.

4. CAAB should check that the experience record satisfies above paragraphs in terms of content and the countersigning signature.

**NOTE:** See AMC 66.B.100 to 115

#### **GM 66.B.100 Procedure for the issue of an aircraft maintenance licence by the CAAB**

At the issue or renewal of a B2L licence:

- one or several system ratings; and
- one or several group/subgroup ratings, should be endorsed on the licence (CAAB Form 26).

A licences should be issued with a subcategory without type ratings.

B1, B2 and C licences may be issued without an aircraft type or group rating.

B2L licences may be issued without an aircraft type or group rating. The B2L licence should always be issued with at least one system rating. This is based on the demonstrated initial experience that at least should be sufficient to endorse one system rating.

B3 licences should be issued with the rating ‘piston engine non-pressurised aeroplanes of 2 000 kg MTOM and below’ endorsed as the experience requirement for the rating is at least covered by the 1, 2 or 3 years of experience for that category.

#### **AMC 66.B.100 to 115**

Aircraft type endorsement should use the standard codes contained in Appendix I to the AMCs.

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

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

- (b) Maintenance organisations referred to in point (a) shall ensure compliance with points 66.B.100 (a) and (b).
- (c) In all cases, the aircraft maintenance licence can only be issued to the applicant by the CAA.

**AMC 66.B.105 Procedure for the issue of an aircraft maintenance licence via the Part-145 approved maintenance organisation**

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 audited by the CAAB 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 CAAB for the Part-145 approval and for the Part-66 licence is the same.
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 than that of application CAAB Form 19 but such different form or manner should be acceptable to the CAAB.

**\*\*\* Applicable from 1 July 2025. Chapter 3.16 will be replaced by Chapter 3.12.**

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

- (a) At the completion of the procedures specified in points 66.B.100 or 66.B.105, the CAAB shall endorse the additional basic category, subcategory or, for category B2L, system rating(s) on the aircraft maintenance licence by stamp and signature or shall reissue the licence.
- (b) The record system of the CAAB shall be changed accordingly.
- (c) Upon request by the applicant, the CAAB shall replace a licence in category B2L with a licence in category B2 endorsed with the same aircraft rating(s) when the holder has demonstrated both of the following:
  - (i) by examination the differences between the basic knowledge corresponding to the B2L licence held and the basic knowledge of the B2 licence, as set out in Appendix I;
  - (ii) the practical experience required in Appendix IV.

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

In the case of computer-generated licences, the licence should be reissued.

When the conditions set in the rule for extending a B2L licence to include the B2 category are met, the B2L licence should be replaced by a B2 licence.

The B2L licence replaced by a B2 licence should be retained by the CAA.

NOTE: AMC 66.B.100 to 115

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

- (a) On receipt of a satisfactory CAAB Form 19 and any supporting documentation demonstrating compliance with the requirements of the applicable rating together with the accompanying aircraft maintenance licence, CAAB shall either:
  - 1. Endorse the applicant's aircraft maintenance licence with the applicable aircraft rating; or
  - 2. Reissue the said licence to include the applicable aircraft rating; or
  - 3. Remove the applicable limitations in accordance with point 66.A.50.

CAAB record system shall be changed accordingly.

- (b) In the case where the complete type training is not conducted by maintenance training organisation appropriately approved in accordance with Part-147, CAAB shall be satisfied that all type-training requirements are complied with before the type rating is issued.
- (c) In the case where the On-the-Job Training is not required, the aircraft type rating shall be endorsed based on a Certificate of Recognition issued by a maintenance training organisation approved in accordance with Part-147.
- (d) In the case where the aircraft type training is not covered by a single course, CAAB shall be satisfied prior to the type rating endorsement that the content and length of the courses fully satisfy the scope of the licence category and that the interface areas have been appropriately addressed.

- (e) In the case of differences training, CAAB shall be satisfied that
  - (i) the applicant's previous qualification, supplemented by
  - (ii) either a course approved in accordance with Part-147 or a course directly approved by CAAB, are acceptable for type rating endorsement.
- (f) The CAAB shall ensure that compliance with the practical elements of the type training is demonstrated by one of the following:
  - (i) by the provision of detailed practical training records or a logbook provided by a maintenance organisation appropriately approved in accordance with Part-145 or, where available.
  - (ii) where available, by a training certificate covering the practical training element issued by a maintenance training organisation appropriately approved in accordance with Part-147.
- (g) Aircraft type endorsement shall use the aircraft type ratings specified by CAAB.

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

- (a) Where the type training has not been conducted by a Part-147 organisation, there should be supporting documents confirming to CAAB that:
  - The type training has been approved by CAAB in accordance with 66.B.130,
  - The applicant has completed the elements of the approved type training; and
  - The trainee has been successfully examined/assessed.
- (b) Aircraft type training may be subdivided in airframe and/or powerplant and/or avionics/electrical systems type training courses.
  1. Airframe type training course means a type training course including all relevant aircraft structure and electrical and mechanical systems excluding the powerplant.
  2. Powerplant type training course means a type training course on the bare engine, including the build-up to a quick engine change unit.

3. 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.
  4. 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.
- (c) For the acceptance of the OJT programme described in Section 6 of Appendix III to Part-66, the licensing CAAB 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’.

In the case where the licensing CAAB is different from the CAAB of the maintenance organisation which provides the OJT, the licensing authority may take into consideration the fact that the maintenance organisation may already have the OJT programme accepted by their own CAAB (directly approved or through chapter 3.15 of the MOE, as described in AMC 145.A.70(a)).

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

- (a) CAAB shall compare the holder’s aircraft maintenance licence with CAAB 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 the duration of five years and the file endorsed accordingly.
- (b) If the CAAB records are different from the aircraft maintenance licence held by the licence holder:
  1. CAAB shall investigate the reasons for such differences and may choose not to renew the aircraft maintenance licence;
  2. CAAB shall inform the licence holder and any known maintenance organisation approved in accordance with Part-M Subpart F or Part-145 that may be directly affected of such fact.
  3. CAAB, if necessary, take action in accordance with point 66.B.500 to revoke, suspend or change the licence in question.



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

The CAAB 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 a matter for the approved Part-145 / Subpart F maintenance organization or the certifying staff in accordance with Part-M, Para M.A.801(b).

For the purpose of ensuring the continued validity of the certification privileges CAAB may, when periodically reviewing the organizations 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.

**\*\*\* Applicable from 1 July 2025. Article 145.B.30 will be replaced by Article 145.B.305.**

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

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

- **Aeroplane 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 engines, full group: converted to the aircraft type ratings for those aeroplanes with multiple turboprop engines which did not require an aircraft type rating in the previous system.
2. For category B2:
- **Aeroplane:** converted to “full sub-group 2a” and “full group 3”, plus the aircraft type ratings for those aeroplanes which did not require an aircraft type rating in the previous system and are in Group 1;
  - **Helicopter:** converted to “full sub-groups 2b and 2c”, plus the aircraft type ratings for those helicopters which did not require an aircraft type rating in the previous system and are in Group 1.
3. For category C:
- **Aeroplane:** converted to “full sub-group 2a” and “full group 3”, plus the aircraft type ratings for those aeroplanes which did not require an aircraft type rating in the previous system and are in Group 1;
  - **Helicopter:** converted to “full sub-groups 2b and 2c”, plus the aircraft type ratings for those helicopters which did not require an aircraft type rating in the previous system and are in Group 1.
- (c) If the licence was subject to limitations following the conversion process referred to in point 66.A.70, these limitations shall remain on the licence, unless they are removed under the conditions defined in the relevant conversion report referred to in point 66.B.300.

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

- (a) The CAAB may approve aircraft type training not conducted by a maintenance training organisation approved in accordance with Part-147, pursuant to point 1 of Appendix III to this Part. In such case CAAB shall have a procedure to ensure the aircraft type training complies with Appendix III of this Part.

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

1. The procedure for the direct approval of type training courses by CAAB should require that the following aspects are described by the organisation providing the training:
  - 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 CAAB is going to audit the proper performance of the approved course.
4. The direct approval of aircraft type training should be 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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**SUBPART C EXAMINATIONS**

This Subpart provides the procedure for examinations conducted by CAAB.

**66.B.200 Examination by CAAB**

- (a) All examination questions shall be kept in a secure manner prior to an examination, to ensure that candidates will not know which particular questions will form the basis of the examination.
- (b) CAAB shall nominate:
  - 1. Persons who control the questions to be used for each examination.
  - 2. Examiners who shall be present during all examinations to ensure the integrity of the examination.
- (c) Basic examinations shall follow the standard specified in Appendix I and II to this Part.
- (d) Type examinations must follow the standard specified in Appendix III to this Part.
- (e) New essay questions shall be raised at least every six months and used questions withdrawn or rested from use. A record of the questions used shall be retained in the records for reference.
- (f) All examination papers shall be handed out at the start of the examination to the candidate and handed back to the examiner at the end of the allotted examination time period. No examination paper may be removed from the examination room during the allotted examination time period.
- (g) Apart from specific documentation needed for type examinations, only the examination paper may be available to the candidate during the examination.
- (h) Examination candidates shall be separated from each other so that they cannot read each other's examination papers. They may not speak to any person other than the examiner.
- (i) Candidates who are proven to be cheating shall be banned from taking any further examination within 12 months of the date of the examination in which they were found cheating or in accordance with the applicable National Regulation.

**GM 66.B.200 Examination by CAAB**

1. Questions may be prepared in the national language but the use of aviation English is recommended wherever possible.
2. 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 for the maintenance record, which is why only a few essay questions are required.
3. 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 CAAB from meeting potential certifying staff for the purpose of ensuring they understand their obligations and responsibilities in the application of maintenance parts.
4. For pass mark purposes, the essay questions should be considered as separate from the multiple-choice questions.
5. Multiple choice question (MCQ) generation:

The following principles should be observed when developing multiple choice question:

- (a) The examination should measure clearly formulated goals. Therefore, the field and depth of knowledge to be measured by each question must be fully identified.
- (b) All the questions should be of the multiple-choice type with three alternatives answers.
- (c) Questions that require specialized knowledge of specific aircraft types, should not be asked in a basic licence examination.
- (d) The use of abbreviations and acronyms should be generally 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  $\alpha = 12^\circ$ ).
- (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 must seem equally plausible to anyone ignorant of the subject. All of the alternatives should be clearly related to the question and of similar vocabulary, grammatical structure and length. In numerical questions, the incorrect answers should correspond to procedural errors such as corrections applied in the wrong sense of incorrect unit conversions: they must 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  $\sqrt{10}$ , then the question should specify the approximate value of  $\sqrt{10}$ .
- (k) Questions must be referred to Part-66 Appendix I examination syllabus.

6. Essay question generation:

- (a) The purpose of the essay is to allow the CAAB 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 to assess, 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 any A or B licence category or subcategories and comply with the following general guidelines:

- 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 1.
  - cover technology applicable to most areas of aircraft maintenance.
  - reflects common working practices.
  - it is not type or manufacturer specific and avoids subjects which are rarely found in practice.
  - When drafting a question there is a need to ensure consideration is given to the limited practical experience that most candidates will have.
- (c) To make the questions and the marking procedures are as consistent as possible, each question and model answer, with the required key areas required (see below), should be reviewed independently by at least 2 technical staff members.
- (d) When raising questions the following should be considered:
- each essay question will have a time allowance of 20 minutes.
  - a complete A4 side is provided for each question and answer, if required the answer can be extended onto reverse side of the page.
  - the question should be such that the answer expected will be at the level shown for that subject in the module syllabus.
  - the question should not be ambiguous but should seek a broad reply rather than be limited in scope for answer.
  - 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.
  - do not ask for drawings/sketches to support the essay.
  - the question must 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.



- subject to obvious constraints in relation to the 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.
- 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.
- (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.
- (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.
- (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.
- (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.
- (i) The question answer 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.
- (j) The answer should show the candidate’s ability to express himself in technical language. This includes readability of the language, basic grammar and use of terminology.
- (k) The report starts in the beginning and has a logical process to reach a conclusion.
- (l) Supporting diagrams should not be encouraged but if used should supplement the answer and not replace the need for a broad text answer.

- (m) The report should not be indexed, itemized or listed.
- (n) Within reason the candidate should not be penalized for incorrect spelling.
- (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 up to the maximum percentage allowed.
- (p) The two allocated marks should be added together and written into the answer paper.
- (q) If a question 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.

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**SUBPART D****CONVERSION OF CERTIFYING STAFF QUALIFICATIONS**

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

**66.B.300 General**

- (a) CAAB may only perform the conversion specified in 66.A.70 in accordance with a conversion report prepared pursuant to paragraph 66.B.305 or 66.B.310, as applicable.
- (b) The conversion report shall be
  - (i) developed by CAAB or
  - (ii) approved by the CAAB to ensure compliance with this Annex (Part-66).
- (c) Conversion reports together with any change of these shall be kept on record by the CAAB in accordance with point 66.B.20.

**GM 66.B.300 General**

As described in point 66.B.300, certifying staff qualifications eligible for conversion are those valid “prior to the entry into force of the applicable requirements of this Part

**66.B.305 Conversion report for national qualifications**

- (a) The conversion report for national certifying staff qualifications shall describe the scope of each type of qualification, including the national licence, if any, the associated privileges and include a copy of the relevant national regulations defining these.
- (b) The conversion report shall show for each type of qualification referred to in point (a):
  - 1. To which aircraft maintenance licence it will be converted, and
  - 2. Which limitations shall be added in accordance with points 66.A.70(c) or (d), as applicable, and
  - 3. The conditions to remove the limitations, specifying the module/subjects on which examination is needed to remove the limitations and obtain a full aircraft maintenance licence, or to include an additional (sub-) category. This shall include the modules defined in Appendix III to this Part-66 not covered by the national qualifications.

**AMC 66.B.305(a) Conversion report for national qualifications**

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 other-than- complex motor-powered aircraft not used by air carriers licensed in accordance with National Regulation should include the privileges associated to the national qualification. The reports should identify which limitations are needed to the Part-66 licence in order to maintain these privileges.

**GM 66.B.305(b)3 Conversion report for national qualifications**

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 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.

This means that, in order to remove such limitations, full compliance with the conditions of Part- 66 needs to be demonstrated.

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

- (a) For each approved maintenance organisation concerned, the conversion report shall describe the scope of each type of authorisation issued by the maintenance organisation and include a copy of the relevant approved maintenance organisation's procedures for the qualification and the authorisation of certifying staff on which the conversion process is based.
- (b) The conversion report shall show for each type of authorisation referred to in point (a):
  1. to which aircraft maintenance licence it will be converted, and
  2. which limitations shall be added in accordance with points 66.A.70(c) or (d), as applicable, and

3. the conditions to remove the limitations, specifying the module/subjects on which examination is needed to remove the limitations and obtain a full aircraft maintenance licence, or to include an additional (sub-) category. This shall include the modules defined in Appendix III to this Annex (Part-66) not covered by the national qualification.

**AMC 66.B.310(a) Conversion report for approved maintenance organization's authorisation**

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.
2. Conversion reports prepared on the basis of point 66.A.70(d), which are limited to other-than- complex motor-powered aircraft that are not used by air carriers licensed in accordance with National Regulation should include the privileges associated to the organisation authorisation. The reports should identify which limitations are needed to the Part-66 licence in order to maintain these privileges.

**GM 66.B.310(b)3 Conversion report for approved maintenance organisations authorisations**

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.

This means that, in order to remove such limitations, full 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(b).

**66.B.400 General**

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

**66.B.405 Examination Credit Report**

- (a) The credit report shall include a comparison between:
  - (i) the modules, sub-modules, subjects and knowledge levels contained in Appendix I to this 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 and contain the justifications for each statement.

- (b) Credit for examinations, other than basic knowledge examinations carried out in maintenance training organisations approved in accordance with Part-147 can only be granted by CAAB.
- (c) 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.
- (d) CAAB shall check, on a regular basis, whether
  - (i) the national qualification standard, or
  - (ii) Appendix I to this Annex (Part-66) as applicable.

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

**66.B.410 Examination credit validity**

- (a) CAAB shall notify to the applicant in writing any credits granted together with the reference to the credit report used.
- (b) Credits shall expire ten years after they are granted.
- (c) Upon expiration of the credits, the applicant may apply for new credits. CAAB 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 Part have not been changed.

**GM 66.B.410 Examination credit validity**

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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**SUBPART F****CONTINUING OVERSIGHT**

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

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

Civil Aviation Authority, Bangladesh 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 submitted 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 this Part-M, Part-145 or Part-66.



## **CHAPTER 3**

## **APPENDICES**

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

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

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

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

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

**LEVEL 2:** A general knowledge of the theoretical and practical aspects of the subject. 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.

A capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner.

Objectives:

- The applicant should know the theory of the subject and interrelationships with other subjects.
- The applicant should be able to give a detailed description of the subject using theoretical fundamentals and specific examples.
- The applicant should understand and be able to use mathematical formulae related to the subject.
- The applicant should be able to read, understand and prepare sketches, simple drawings and schematics describing the subject.
- The applicant should be able to apply his knowledge in a practical manner using manufacturer's instructions.
- The applicant should be able to interpret results from various sources and measurements and apply corrective action where appropriate.

## 2. MODULARISATION

Qualification on basic subjects for each Part-66 aircraft maintenance licence category or subcategory should be in accordance with the following matrix. Applicable subjects are indicated by an 'X'.

**For categories A, B1 and B3:**

| Subject modules | A or B1 aeroplane with: |                  | A or B1 helicopter with: |                  | B3   |
|-----------------|-------------------------|------------------|--------------------------|------------------|--|
|                 | Turbine engine(s)       | Piston engine(s) | Turbine engine(s)        | Piston engine(s) | Piston-engine non-pressurised aeroplanes of 2000 kg MTOM and below |
| 1               | X                       | X                | X                        | X                | X  |
| 2               | X                       | X                | X                        | X                | X  |
| 3               | X                       | X                | X                        | X                | X  |
| 4               | X                       | X                | X                        | X                | X  |
| 5               | X                       | X                | X                        | X                | X  |
| 6               | X                       | X                | X                        | X                | X  |

| Subject modules | A or B1 aeroplane with: |                  | A or B1 helicopter with: |                  | B3   |
|-----------------|-------------------------|------------------|--------------------------|------------------|--|
|                 | Turbine engine(s)       | Piston engine(s) | Turbine engine(s)        | Piston engine(s) | Piston-engine non-pressurised aeroplanes of 2000 kg MTOM and below |
| 7               | X                       | X                | X                        | X                | X  |
| 8               | X                       | X                | X                        | X                | X  |
| 9               | X                       | X                | X                        | X                | X  |
| 10              | X                       | X                | X                        | X                | X  |
| 11              | X                       | X                |                          |                  | X  |
| 12              |                         |                  | X                        | X                |  |
| 13              |                         |                  |                          |                  |  |
| 14              |                         |                  |                          |                  |  |
| 15              | X                       |                  | X                        |                  |  |
| 16              |                         | X                |                          | X                | X  |
| 17              | X                       | X                |                          |                  | X  |

**For categories B2 and B2L:**

| Subject module/submodules | B2 | B2L                                |
|---------------------------|----|------------------------------------|
| 1                         | X  | X                                  |
| 2                         | X  | X                                  |
| 3                         | X  | X                                  |
| 4                         | X  | X                                  |
| 5                         | X  | X                                  |
| 6                         | X  | X                                  |
| 7                         | X  | X                                  |
| 8                         | X  | X                                  |
| 9                         | X  | X                                  |
| 10                        | X  | X                                  |
| 11                        |    |                                    |
| 12                        |    |                                    |
| 13.1 and 13.2             | X  | X                                  |
| 13.3(a)                   | X  | X (for system rating 'Autoflight') |

| Subject module/submodules | B2 | B2L   |
|---------------------------|----|---|
| 13.3(b)                   | X  |   |
| 13.4(a)                   | X  | X (for system rating 'Com/Nav')                             |
| 13.4(b)                   | X  | X (for system rating 'Surveillance')                        |
| 13.4(c)                   | X  |   |
| 13.5                      | X  | X   |
| 13.6                      | X  |   |
| 13.7                      | X  | X (for system rating 'Autoflight')                          |
| 13.8                      | X  | X (for system rating 'Instruments')                         |
| 13.9                      | X  | X   |
| 13.10                     | X  |   |
| 13.11 to 13.18            | X  | X (for system rating 'Airframe systems')                    |
| 13.19 to 13.22            | X  |   |
| 14                        | X  | X (for system ratings 'Instruments' and 'Airframe systems') |
| 15                        |    |   |
| 16                        |    |   |
| 17                        |    |   |

**MODULE 1. MATHEMATICS**

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>1.1 Arithmetic</b><br>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  |
| <b>1.2 Algebra</b><br>Evaluating simple algebraic expressions, addition, subtraction, multiplication and division, use of brackets, simple algebraic fractions;   | 1     | 2  | 2      | 2  |
| Linear equations and their solutions;   | —     | 1  | 1      | 1  |
| Indices and powers, negative and fractional indices;  |       |    |        |    |
| Binary and other applicable numbering systems;  |       |    |        |    |
| Simultaneous equations and second-degree equations with one unknown; Logarithms.  |       |    |        |    |
| <b>1.3 Geometry</b>   |       |    |        |    |
| (a) Simple geometrical constructions;   | —     | 1  | 1      | 1  |
| (b) Graphical representation; nature and uses of graphs, graphs of equations/functions;   | 2     | 2  | 2      | 2  |
| (c) Simple trigonometry: trigonometrical relationships, use of tables and rectangular and polar coordinates.  | —     | 2  | 2      | 2  |

**MODULE 2. PHYSICS**

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>2.1 Matter</b><br>Nature of matter: the chemical elements, structure of atoms, molecules;<br>Chemical compounds.<br>States: solid, liquid and gaseous;<br>Changes between states.   | 1     | 1  | 1      | 1  |
| <b>2.2 Mechanics</b><br><b>2.2.1 Statics</b><br>Forces, moments and couples, representation as vectors;<br>Centre of gravity;<br>Elements of theory of stress, strain, and elasticity: tension, compression, shear, and torsion;<br>Nature and properties of solid, fluid, and gas matter;<br>Pressure and buoyancy in liquids (barometers).                               | 1     | 2  | 2      | 1  |
| <b>2.2.2 Kinetics</b><br>Linear movement: uniform motion in a straight line, motion under constant acceleration (motion under gravity);<br>Rotational movement: uniform circular motion (centrifugal/centripetal forces); Periodic motion: pendular movement;<br>Simple theory of vibration, harmonics and resonance; Velocity ratio, mechanical advantage and efficiency. | 1     | 2  | 2      | 1  |
| <b>2.2.3 Dynamics</b><br>(a) Mass<br>Force, inertia, work, power, energy (potential, kinetic and total energy), heat, efficiency;  | 1     | 2  | 2      | 1  |

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| (b) Momentum, conservation of momentum; Impulse;<br>Gyroscopic principles;<br>Friction: nature and effects, coefficient of friction (rolling resistance).   | 1     | 2  | 2      | 1  |
| <b>2.2.4 Fluid dynamics</b>   |       |    |        |    |
| (a) Specific gravity and density;   | 2     | 2  | 2      | 2  |
| (b) Viscosity, fluid resistance, effects of streamlining; effects of compressibility on fluids;<br>Static, dynamic and total pressure: Bernoulli's Theorem, venturi.  | 1     | 2  | 2      | 1  |
| <b>2.3 Thermodynamics</b>   |       |    |        |    |
| (a) Temperature: thermometers and temperature scales (Celsius, Fahrenheit and Kelvin); definition of heat;  | 2     | 2  | 2      | 2  |
| (b) Heat capacity, specific heat;<br>Heat transfer: convection, radiation and conduction; Volumetric expansion;<br>First and second law of thermodynamics;<br>Gases: ideal gases laws; specific heat at constant volume and constant pressure, work done by expanding gas;<br>Isothermal, adiabatic expansion and compression, engine cycles, constant volume and constant pressure, refrigerators and heat pumps;<br>Latent heats of fusion and evaporation, thermal energy, heat of combustion. | —     | 2  | 2      | 1  |
| <b>2.4 Optics (Light)</b>   |       |    |        |    |
| Nature of light; speed of light;  | —     | 2  | 2      | —  |
| Laws of reflection and refraction: reflection at plane surfaces, reflection by spherical mirrors, refraction, lenses;   |       |    |        |    |
| Fibre optics.   |       |    |        |    |



|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>2.5 Wave Motion and Sound</b><br>Wave motion: mechanical waves, sinusoidal wave motion, interference phenomena, standing waves;<br>Sound: speed of sound, production of sound, intensity, pitch and quality, Doppler effect. | —     | 2  | 2      | —  |

**MODULE 3. ELECTRICAL FUNDAMENTALS**

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>3.1 Electron Theory</b><br>Structure and distribution of electrical charges within: atoms, molecules, ions, compounds;<br>Molecular structure of conductors, semiconductors and insulators.   | 1     | 1  | 1      | 1  |
| <b>3.2 Static Electricity and Conduction</b><br>Static electricity and distribution of electrostatic charges;<br>Electrostatic laws of attraction and repulsion;<br>Units of charge, Coulomb's Law;<br>Conduction of electricity in solids, liquids, gases and a vacuum.   | 1     | 2  | 2      | 1  |
| <b>3.3 Electrical Terminology</b><br>The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.  | 1     | 2  | 2      | 1  |
| <b>3.4 Generation of Electricity</b><br>Production of electricity by the following methods: light, heat, friction, pressure, chemical action, magnetism and motion.  | 1     | 1  | 1      | 1  |
| <b>3.5 DC Sources of Electricity</b><br>Construction and basic chemical reaction of primary cells, secondary cells, lead acid cells, nickel cadmium cells, lithium cells, nickel cells and other alkaline cells; Cells connected in series and in parallel; Internal resistance and its effect on a battery; Construction, materials, and operation of thermocouples; Operation of photocells. | 1     | 2  | 2      | 2  |

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>3.6 DC Circuits</b><br>Ohm's law, Kirchhoff's voltage, and current laws; Calculations using the above laws to find resistance, voltage, and current; Significance of the internal resistance of a supply.  | 1     | 2  | 2      | 1  |
| <b>3.7 Resistance/Resistor</b><br>(a) Resistance<br>Specific resistance; Calculation of total resistance using series, parallel and series-parallel combinations;<br>Operation and use of potentiometers and rheostats;<br>Operation of Wheatstone Bridge.  | —     | 2  | 2      | 1  |
| (b) Resistor<br>Positive and negative temperature coefficient conductance;<br>Resistor colour code, values and tolerances, preferred values, wattage ratings; Resistors in series and in parallel;<br>Fixed resistors, stability, tolerance and limitations, methods of construction;<br>Variable resistors, thermistors, voltage-dependent resistors;<br>Construction of potentiometers and rheostats;<br>Construction of Wheatstone Bridge. | —     | 1  | 1      | —  |
| <b>3.8 Power</b><br>Power, work and energy (kinetic and potential);<br>Dissipation of power by a resistor;<br>Power formula;<br>Calculations involving power, work and energy.  | —     | 2  | 2      | 1  |

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>3.9 Capacitance/Capacitor</b><br>Operation and function of a capacitor; Factors that affect the capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating; Capacitor types, construction, and function; Capacitor colour-coding; Calculations of capacitance and voltage in series and in parallel circuits; Exponential charge and discharge of a capacitor, time constants; Testing of capacitors. | —     | 2  | 2      | 1  |
| <b>3.10 Magnetism</b><br>(a) Theory of magnetism;<br>Properties of a magnet;<br>Action of a magnet suspended in the Earth's magnetic field;<br>Magnetisation and demagnetisation;<br>Magnetic shielding;<br>Various types of magnetic material; Electromagnet construction and principles of operation;<br>Handclasp rules to determine magnetic field around current-carrying conductor.  | —     | 2  | 2      | 1  |
| (b) Magnetomotive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents;<br>Precautions for care and storage of magnets.  | —     | 2  | 2      | 1  |
| <b>3.11 Inductance/Inductor</b><br>Faraday's law;<br>Action of inducing a voltage in a conductor that moves in a magnetic field;<br>Induction principles;<br>Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns;  | —     | 2  | 2      | 1  |

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <p>Mutual induction;<br/>The effect that the rates of change of primary current and mutual inductance have on induced voltage;<br/>Factors that affect mutual inductance: number of turns in the coil, physical size of the coil, permeability of the coil, position of coils with respect to each other;<br/>Lenz's law and polarity determining rules;<br/>Back EMF, self-induction;<br/>Saturation point;<br/>Principal uses of inductors.</p>            |       |    |        |    |
| <p><b>3.12 DC Motor/Generator Theory</b><br/>Basic motor and generator theory;<br/>Construction and purpose of components in a DC generator;<br/>Operation of and factors that affect the output and direction of the current in DC generators;<br/>Operation of and factors that affect the output power, torque, speed, and direction of rotation of DC motors;<br/>Series-wound, shunt-wound and compound motors;<br/>Starter generator construction.</p> | —     | 2  | 2      | 1  |
| <p><b>3.13 AC Theory</b><br/>Sinusoidal waveform: phase, period, frequency, cycle;<br/>Instantaneous, average, root mean square, peak, peak-to-peak current values and calculations of these values in relation to voltage, current and power;<br/>Triangular/Square waves;<br/>Single-phase/Three-phase principles.</p>   | 1     | 2  | 2      | 1  |

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>3.14 Resistive (R), Capacitive (C) and Inductive (L) Circuits</b><br>Phase the relationship of voltage and current in L, C and R circuits, parallel, series and series-parallel;<br>Power dissipation in L, C and R circuits;<br>Impedance, phase angle, power factor and current calculations;<br>True power, apparent power, and reactive power calculations.   | —     | 2  | 2      | 1  |
| <b>3.15 Transformers</b><br>Transformer construction principles and operation;<br>Transformer losses and methods for overcoming them;<br>Transformer action under load and no-load conditions;<br>Power transfer, efficiency, polarity markings;<br>Calculation of line and phase voltages and currents;<br>Calculation of power in a three phase system;<br>Primary and Secondary current, voltage, turns ratio, power, efficiency;<br>Auto transformers. | —     | 2  | 2      | 1  |
| <b>3.16 Filters</b><br>Operation, application, and uses of the following filters: low pass, high pass, band pass, band stop.   | —     | 1  | 1      | —  |
| <b>3.17 AC Generators</b><br>Rotation of loop in a magnetic field and waveform produced; Operation and construction of revolving armature and revolving field type AC generators;<br>Single-phase, two-phase, and three-phase alternators; Three-phase star and delta connection advantages, and uses; Permanent magnet generators.  | —     | 2  | 2      | 1  |

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>3.18 AC Motors</b><br>Construction, principles of operation and characteristics of: AC synchronous and induction motors both single-phase and polyphase;<br>Methods of speed control and direction of rotation;<br>Methods of producing a rotating field: capacitor, shaded or split pole. | —     | 2  | 2      | 1  |

**MODULE 4. ELECTRONIC FUNDAMENTALS**

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>4.1 Semiconductors</b>   |       |    |        |    |
| <b>4.1.1 Diodes</b>   |       |    |        |    |
| (a) Description and characteristics;<br>Diode symbols;<br>Diodes in series and parallel;<br>Materials, electron configuration, electrical properties;<br>P and N type materials: effects of impurities on conduction, majority and minority characters;<br>P–N junction in a semiconductor, development of a potential across a P–N junction in unbiased, forward-biased and reverse-biased conditions;<br>Diode parameters: peak inverse voltage, maximum forward current, temperature, frequency, leakage current, power dissipation;<br>Main characteristics and use of silicon-controlled rectifiers (thyristors), light-emitting diodes (LEDs), photo-conductive diodes, rectifier diodes. | —     | 2  | 2      | 2  |
| (b) Operation and function<br>Operation and function of diodes in the following circuits: clippers, clampers, full and half wave rectifiers, bridge rectifiers, voltage doublers and triplers;<br>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.<br>Functional testing of diodes.  | —     | —  | 2      | —  |



|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>4.1.2 Transistors</b><br>(a) Description and characteristics;<br>Transistor symbols;<br>Component description and orientation;<br>Transistor characteristics and properties.<br>(b) Construction and operation<br>Construction and operation of PNP and NPN transistors;<br>Base, collector and emitter configurations;<br>Testing of transistors.<br>Basic appreciation of other transistor types and their uses. Application of transistors: classes of amplifier (A, B, C);<br>Simple circuits including: bias, decoupling, feedback and stabilisation;<br>Multistage circuit principles: cascades, push-pull, oscillators, multivibrators, flip-flop circuits.<br>Operation and amplifier stages connecting methods: resistive, capacitive, direct, inverting, non-inverting and adding. | —     | 1  | 2      | 1  |
| <b>4.1.3 Integrated Circuits</b><br>(a) Basic description and operation;<br>Logic circuits and linear circuits/operational amplifiers.<br>(b) Introduction to operation and function of an operational amplifier used as: integrator, differentiator, voltage follower, a comparator;<br>Advantages and disadvantages of positive and negative feedback   | —     | 1  | 2      | 1  |
| <b>4.2 Printed Circuit Boards</b><br>Description and use of printed circuit boards.   | —     | 1  | 2      | 1  |

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>4.3 Servomechanisms</b>  |       |    |        |    |
| (a) Principles:<br>Understanding of the following principles:<br>open- and closed-loop systems,<br>servomechanism, feedback, follow-up, null,<br>overshoot, damping, deadband, hunting,<br>proximity switches, analogue transducers,<br>synchro systems and components, digital<br>tachometers and encoders, inductance, and<br>capacitance transmitters;   | —     | 1  | 2      | 1  |
| (b) Construction operation and use of the<br>following synchro system components:<br>resolvers, differential, control and torque,<br>E and I transformers, inductance<br>transmitters, capacitance transmitters,<br>synchronous transmitters;<br>Construction, operation and use of<br>servomechanism and PID controller;<br>Fault-finding of servo defects, reversal of<br>synchro leads, hunting. | —     | —  | 2      | —  |

### MODULE 5. DIGITAL TECHNIQUES/ ELECTRONIC INSTRUMENT SYSTEMS

|  | Level |              |              |           |    |
|--|-------|--------------|--------------|-----------|----|
|  | A     | B1.1<br>B1.3 | B1.2<br>B1.4 | B2<br>B2L | B3 |
| <b>5.1 Electronic Instrument Systems</b><br>Typical systems arrangements and<br>cockpit layout of electronic instrument<br>systems.  | 1     | 2            | 2            | 1         | 1  |
| <b>5.2 Numbering Systems</b><br>Numbering systems: binary, octal and<br>hexadecimal;<br>Demonstration of conversions between<br>the decimal and binary, octal and<br>hexadecimal systems and vice versa. | —     | 1            | —            | 2         | —  |

|  | Level |              |              |           |    |
|--|-------|--------------|--------------|-----------|----|
|  | A     | B1.1<br>B1.3 | B1.2<br>B1.4 | B2<br>B2L | B3 |
| <b>5.3 Data Conversion</b><br>Analogue Data, Digital Data;<br>Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types.                              |       | 1            | —            | 2         | —  |
| <b>5.4 Data Buses</b><br>Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications.<br>Aircraft Network/Ethernet.   | —     | 2            | —            | 2         | —  |
| <b>5.5 Logic Circuits</b><br>(a)<br>Identification of common logic gate symbols, tables and equivalent circuits;<br>Applications used for aircraft systems, schematic diagrams.  | —     | 2            | —            | 2         | —  |
| (b) Interpretation of logic diagrams.  | —     | —            | —            | 2         | —  |
| <b>5.6 Basic Computer Structure</b><br>(a)<br>Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM);<br>Computer technology (as applied in aircraft systems). | 1     | 2            | —            | 2         | 1  |
| (b)<br>Computer operation;<br>Operation, layout and interface of the major components in a   | —     | —            | —            | 2         | —  |

|   | Level |              |              |           |    |
|---|-------|--------------|--------------|-----------|----|
|   | A     | B1.1<br>B1.3 | B1.2<br>B1.4 | B2<br>B2L | B3 |
| microcomputer including their associated bus systems;<br>Information contained in single and multi-address instruction words;<br>Memory associated terms;<br>Operation of typical memory devices;<br>Operation, advantages and disadvantages of the various data storage systems. |       |              |              |           |    |
| <b>5.7 Microprocessors</b><br>Functions performed and overall operation of a microprocessor;<br>Basic operation of each of the following microprocessor elements: control and processing unit, clock, register, arithmetic logic unit.  | —     | —            | —            | 2         | —  |
| <b>5.8 Integrated Circuits</b><br>Operation and use of encoders and decoders;<br>Function of encoder types;   | —     | —            | —            | 2         | —  |
| <b>5.9 Multiplexing</b><br>Operation, application and identification in logic diagrams of multiplexers and de-multiplexers.   | —     | —            | —            | 2         | —  |
| <b>5.10 Fibre Optics</b><br>Advantages and disadvantages of fibre optic data transmission over electrical wire propagation;<br>Fibre optic data bus;<br>Fibre optic related terms;  | —     | 1            | 1            | 2         | —  |

|   | Level |              |              |           |    |
|---|-------|--------------|--------------|-----------|----|
|   | A     | B1.1<br>B1.3 | B1.2<br>B1.4 | B2<br>B2L | B3 |
| Terminations;<br>Couplers, control terminals, remote terminals;<br>Application of fibre optics in aircraft systems.<br><b>5.11 Electronic Displays</b><br>Principles of operation of common types of displays used in modern aircraft, including cathode-ray tubes (CRTs), light-emitting diodes (LEDs) and liquid crystal displays (LCDs). | —     | 2            | 1            | 2         | 1  |
| <b>5.12 Electrostatic Sensitive Devices</b><br>Special handling of components sensitive to electrostatic discharges;<br>Awareness of risks and possible damage, component and personnel anti-static protection devices.   | 1     | 2            | 2            | 2         | 1  |
| <b>5.13 Software Management Control</b><br>Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programs.  | —     | 2            | 1            | 2         | 1  |
| <b>5.14 Electromagnetic Environment</b><br>Influence of the following phenomena on maintenance practices for electronic system:<br>EMC-Electromagnetic Compatibility<br>EMI-Electromagnetic Interference<br>HIRF-High Intensity Radiated Field<br>Lightning/lightning protection  | —     | 2            | 2            | 2         | 1  |

|   | Level |              |              |           |    |
|---|-------|--------------|--------------|-----------|----|
|   | A     | B1.1<br>B1.3 | B1.2<br>B1.4 | B2<br>B2L | B3 |
| <b>5.15 Typical Electronic/Digital Aircraft Systems</b><br><br>General arrangement of typical electronic/digital aircraft systems and associated BITE (Built-in Test Equipment) testing such as:<br>a) For B1 and B2 only:<br>ACARS-ARINC Communication and Addressing and Reporting System<br>FBW-Fly by Wire<br>FMS-Flight Management System<br>IRS-Inertial Reference System<br>b) For B1, B2 and B3:<br>ECAM - Electronic Centralised Aircraft Monitoring<br>EFIS - Electronic Flight Instrument System<br>EICAS - Engine Indication and Crew Alerting System<br>GNSS - Global Navigation Satellite system,<br>TCAS - Traffic Alert Collision Avoidance System<br>Integrated Modular Avionics<br>Cabin Systems<br>Information Systems | —     | 1            | 1            | 1         | 1  |

**MODULE 6. MATERIALS AND HARDWARE**

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>6.1 Aircraft Materials—Ferrous</b>  |       |    |        |    |
| (a) Alloy steels used in aircraft Characteristics, properties and identification of common 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  |
| (c) Repair and inspection procedures for ferrous materials, structures, and airframes.   | —     | 2  | 1      | 2  |
| <b>6.2 Aircraft Materials — Non-Ferrous</b>  |       |    |        |    |
| (a) Characteristics, properties and identification of common non-ferrous materials used in aircraft;<br>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  |
| (c) Repair and inspection procedures for non-ferrous materials, structures, and airframes.   | —     | 2  | 1      | 2  |
| <b>6.3 Aircraft Materials—Composite and Non-Metallic</b>   |       |    |        |    |
| 6.3.1 Composite and non-metallic other than wood and fabric  | 1     | 2  | 2      | 2  |
| (a) Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft;<br>Sealant and bonding agents. | 1     | 2  | —      | 2  |
| (b) Detection of defects/deterioration in composite and non-metallic material.   | —     | 2  | 1      | 2  |
| (c) Repair and inspection procedures for composite and non-metallic materials, structures, and airframes.  |       |    |        |    |

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| 6.3.2 Wooden structures<br>Construction methods of wooden airframe structures;<br>Characteristics, properties and types of wood and glue used in aeroplanes; Preservation and maintenance of wooden structure;<br>Types of defects in wood material and wooden structures;<br>The detection of defects in wooden structure;<br>Repair of wooden structure. | 1     | 2  | —      | 2  |
| 6.3.3 Fabric covering<br>Characteristics, properties and types of fabrics used in aeroplanes; Inspections methods for fabric;<br>Types of defects in fabric; Repair of fabric covering.  | —     | 1  | —      | 1  |
| <b>6.4 Corrosion</b>   |       |    |        |    |
| (a) Chemical fundamentals;<br>Formation by, galvanic action process, microbiological contamination, mechanical stress;   | 1     | 1  | 1      | 1  |
| (b) Types of corrosion and identification; Causes of corrosion;<br>Material types and their susceptibility to corrosion.   | 2     | 3  | 2      | 2  |
| <b>6.5 Fasteners</b>   |       |    |        |    |
| 6.5.1 Screw threads Screw nomenclature;<br>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<br>Bolt types: specification, identification and marking of aircraft bolts, international standards;<br>Nuts: self-locking, anchor, standard types;<br>Machine screws: aircraft specifications;<br>Studs: types and uses, insertion and removal;<br>Self-tapping screws, dowels.   | 2     | 2  | 2      | 2  |



|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>6.5.3 Locking devices</b><br>Tab and spring washers, locking plates, split pins, pal-nuts, wire locking, quick release fasteners, keys, circlips, cotter pins.  | 2     | 2  | 2      | 2  |
| <b>6.5.4 Aircraft rivets</b><br>Types of solid and blind rivets: specifications and identification, heat treatment.  | 1     | 2  | 1      | 2  |
| <b>6.6 Pipes and Unions</b><br>(a) Identification and types of rigid and flexible pipes and their connectors used in aircraft;<br>(b) Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.   | 2     | 2  | 2      | 2  |
| <b>6.7 Springs</b><br>Types of springs, materials, characteristics and applications.   |       |    |        |    |
| <b>6.8 Bearings</b><br>Purpose of bearings, loads, material, construction; Types of bearings and their application.  | 1     | 2  | 2      | 1  |
| <b>6.9 Transmissions</b><br>Gear types and their application;<br>Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns;<br>Belts and pulleys, chains and sprockets. | 1     | 2  | 2      | 1  |
| <b>6.10 Control Cables</b><br>Types of cables;<br>End fittings, turnbuckles and compensation devices; Pulleys and cable system components;<br>Bowden cables;<br>Aircraft flexible control systems.                         | 1     | 2  | 1      | 2  |

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>6.11 Electrical Cables and Connectors</b><br>Cable types, construction and characteristics;<br>High tension and co-axial cables;<br>Crimping;<br>Connector types, pins, plugs, sockets, insulators,<br>current and voltage rating, coupling, identification<br>codes | 1     | 2  | 2      | 2  |

### MODULE 7. MAINTENANCE PRACTICES

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>7.1 Safety Precautions-Aircraft and Workshop</b><br>Aspects of safe working practices including<br>precautions to take when working with<br>electricity, gases (especially oxygen), oils and<br>chemicals.<br>Fuel tank safety and fuel tank entry procedures<br>and precautions. Awareness and precautions<br>regarding aircraft equipped with ballistic recovery<br>systems. Also, instruction in the remedial action<br>to be taken in the event of a fire or another<br>accident with one or more of these hazards<br>including knowledge on extinguishing agents. | 3     | 3  | 3      | 3  |
| <b>7.2 Workshop Practices</b><br>Care of tools, control of tools, use of workshop<br>materials;<br>Dimensions, allowances and tolerances, standards<br>of workmanship;<br>Calibration of tools and equipment, calibration<br>standards.   | 3     | 3  | 3      | 3  |
| <b>7.3 Tools</b><br>Common hand tool types;<br>Common power tool types  | 3     | 3  | 3      | 3  |

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| Operation and use of precision measuring tools;<br>Lubrication equipment and methods.<br>Operation, function and use of electrical general test equipment; |       |    |        |    |
| <b>7.4 Reserved</b>  | —     | —  | —      | —  |
| <b>7.5 Engineering Drawings, Diagrams and Standards</b>  | 1     | 2  | 2      | 2  |
| Drawing types and diagrams, their symbols, dimensions, tolerances and projections;   |       |    |        |    |
| Identifying title block information;   |       |    |        |    |
| Microfilm, microfiche and computerised presentations; Specification 100 of the Air Transport Association (ATA) of America;                                 |       |    |        |    |
| Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL;  |       |    |        |    |
| Wiring diagrams and schematic diagrams.  |       |    |        |    |
| <b>7.6 Fits and Clearances</b>   | 1     | 2  | 1      | 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.  |       |    |        |    |
| <b>7.7 Electrical Wiring Interconnection System (EWIS)</b>   | 1     | 3  | 3      | 3  |
| Continuity, insulation and bonding techniques and testing;   |       |    |        |    |
| Use of crimp tools: hand and hydraulic operated;   |       |    |        |    |
| Testing of crimp joints;   |       |    |        |    |

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| Connector pin removal and insertion;<br>Co-axial cables: testing and installation precautions;<br>Identification of wire types, their inspection criteria and damage tolerance.<br>Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding.<br>High-Intensity Radiated Fields (HIRF) and protection principles;<br>Soldering of electrical wires,<br>EWIS installations, inspection, repair, maintenance and cleanliness standards. |       |    |        |    |
| <b>7.8 Riveting</b><br>Riveted joints, rivet spacing and pitch;<br>Tools used for riveting and dimpling;<br>Inspection of riveted joints.  | 1     | 2  | —      | 2  |
| <b>7.9 Pipes and Hoses</b><br>Bending and belling/flaring aircraft pipes;<br>Inspection and testing of aircraft pipes and hoses;<br>Installation and clamping of pipes.  | 1     | 2  | —      | 2  |
| <b>7.10 Springs</b><br>Inspection and testing of springs.  | 1     | 2  | —      | 2  |
| <b>7.11 Bearings</b><br>Testing, cleaning and inspection of bearings;<br>Lubrication requirements of bearings;<br>Defects in bearings and their causes.  | 1     | 2  | —      | 2  |
| <b>7.12 Transmissions</b><br>Inspection of gears, backlash;  | 1     | 2  | —      | 2  |

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| Inspection of belts and pulleys, chains and sprockets;  |       |    |        |    |
| Inspection of screw jacks, lever devices, push-pull rod systems.  |       |    |        |    |
| <b>7.13 Control Cables</b>  | 1     | 2  | —      | 2  |
| Swaging of end fittings;  |       |    |        |    |
| Inspection and testing of control cables;   |       |    |        |    |
| Bowden cables; aircraft flexible control systems.   |       |    |        |    |
| <b>7.14 Material handling</b>   |       |    |        |    |
| 7.14.1 Sheet Metal  | —     | 2  | —      | 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  | —      | 2  |
| Bonding practices;  |       |    |        |    |
| Environmental conditions  |       |    |        |    |
| Inspection methods  |       |    |        |    |
| 7.14.3 Additive manufacturing   | 1     | 1  | 1      | 1  |
| Common additive manufacturing techniques and their influence on the mechanical properties of the finished part; |       |    |        |    |
| Inspection of additive manufactured parts and common production failures.                                       |       |    |        |    |
| <b>7.15 Reserved</b>  | —     | —  | —      | —  |
| <b>7.16 Aircraft Weight and Balance</b>   |       |    |        |    |
| (a) Centre of Gravity calculation Balance limits calculation: use of relevant documents;                        | —     | 2  | 2      | 2  |
| (b) Aircraft weighing   | —     | 2  | —      | 2  |
| Preparation of aircraft for weighing; Aircraft weighing;  |       |    |        |    |

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>7.17 Aircraft Handling and Storage</b><br>Aircraft taxiing/towing and associated safety precautions;<br>Aircraft jacking, chocking, securing and associated safety precautions;<br>Aircraft storage methods;<br>Refueling/defueling procedures;<br>De-icing/anti-icing procedures;<br>Electrical, hydraulic and pneumatic ground supplies.<br>Effects of environmental conditions on aircraft handling and operation. | 2     | 2  | 2      | 2  |
| <b>7.18 Disassembly, Inspection, Repair and Assembly Techniques</b><br>(a)<br>Types of defects and visual inspection techniques.<br>Corrosion removal, assessment and re-protection.   | 2     | 3  | 3      | 3  |
| (b) General repair methods, Structural Repair Manual;<br>Ageing, fatigue and corrosion control programmes;   | —     | 2  | —      | 2  |
| (c) Non-destructive inspection techniques including, penetrant, radiographic, eddy current, magnetic particle, ultrasonic and borescope inspections; including practical training in colour contrast penetrant inspection;   | —     | 2  | 1      | 2  |
| (d) Disassembly and re-assembly techniques.  | 2     | 2  | 2      | 2  |
| (e) Trouble shooting techniques.   | —     | 2  | 2      | 2  |

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>7.19 Abnormal Events</b>  |       |    |        |    |
| (a) Inspections following lightning strikes and HIRF penetration.  | 2     | 2  | 2      | 2  |
| (b) Inspections following abnormal events such as heavy landings and flight through turbulence.                          | 2     | 2  | —      | 2  |
| <b>7.20 Maintenance Procedures</b>   | 1     | 2  | 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.  |       |    |        |    |
| <b>7.21 Documentation and Communication</b>  |       |    |        |    |
| Documentation: elements and criteria for writing work reports, troubleshooting reports, and shift handover instructions. | 1     | 2  | 2      | 2  |
| Communication: clear, comprehensive, and concise.  |       |    |        |    |

**MODULE 8. BASIC AERODYNAMICS**

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>8.1 Physics of the Atmosphere</b><br>International Standard Atmosphere (ISA), application to aerodynamics.  | 1     | 2  | 2      | 1  |
| <b>8.2 Aerodynamics</b><br>Airflow around a body;<br>Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation;<br>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;<br>Thrust, Weight, Aerodynamic Resultant;<br>Generation of Lift and Drag: Angle of Attack, Lift coefficient, Drag coefficient, polar curve, stall;<br>Aerofoil contamination including ice, snow, frost. | 1     | 2  | 2      | 1  |
| <b>8.3 Theory of Flight</b><br>Relationship between lift, weight, thrust and drag;<br>Glide ratio;<br>Steady state flights, performance;<br>Theory of the turn;<br>Influence of load factor: stall, flight envelope and structural limitations;<br>Lift augmentation.  | 1     | 2  | 2      | 1  |
| <b>8.4 High-speed airflow</b><br>Speed of sound, subsonic flight, transonic flight, supersonic flight, Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule;<br>Factors that affect airflow in engine intakes of high-speed aircraft;<br>Effects of sweepback on critical Mach number.  | 1     | 2  | 2      | 1  |



|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>8.5 Flight Stability and Dynamics</b><br>Longitudinal, lateral and directional stability<br>(active and passive). | 1     | 2  | 2      | 1  |

**MODULE 9. HUMAN FACTORS**

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| <b>9.1 General</b><br>The need to take human factors into account when performing maintenance;<br>Incidents attributable to human factors/human error;<br>Murphy's law.  | 2     | 2  | 2      | 2  |
| <b>9.2 Human Performance and Limitations</b><br>Vision;<br>Hearing;<br>Information processing;<br>Attention and perception;<br>Memory;<br>Claustrophobia and physical access.  | 2     | 2  | 2      | 2  |
| <b>9.3 Social Psychology</b><br>Accountability and responsibility: individual and group;<br>Motivation and demotivation;<br>Peer pressure;<br>Cultural issues;<br>Teamwork;<br>Management, supervision and leadership. | 1     | 1  | 1      | 1  |
| <b>9.4 Factors that Affect Performance</b><br>Fitness/health;<br>Stress: domestic and work related;  | 2     | 2  | 2      | 2  |

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| Time pressure and deadlines;<br>Workload: overload and underload, and workload management;<br>Sleep and fatigue, shiftwork;<br>Alcohol, medication, drug abuse;<br>Lack of manpower.                        |       |    |        |    |
| <b>9.5 Physical Environment</b>   | 1     | 1  | 1      | 1  |
| Noise and fumes;<br>Illumination;<br>Climate and temperature;<br>Motion and vibration;<br>Working environment;<br>Situational awareness.  |       |    |        |    |
| <b>9.6 Tasks</b>  | 1     | 1  | 1      | 1  |
| Physical work;<br>Repetitive tasks, complacency;<br>Visual inspection;<br>Complex systems;<br>Critical maintenance tasks and error-capturing methods;<br>Technical documentation: access, use, and quality. |       |    |        |    |
| <b>9.7 Communication</b>  | 2     | 2  | 2      | 2  |
| Within and between teams;<br>Work logging and recording;<br>Shift handover;<br>Keeping up to date, currency;<br>Dissemination of information.   |       |    |        |    |
| <b>9.8 Human Error</b>  | 2     | 2  | 2      | 2  |
| Error models and theories;<br>Types of error in maintenance tasks;  |       |    |        |    |

|  | Level |    |        |    |
|--|-------|----|--------|----|
|  | A     | B1 | B2 B2L | B3 |
| Implications of errors (i.e. accidents)<br>Organisational errors;<br>Avoiding and managing errors.<br><b>9.9 Safety Management</b><br>Risk management;<br>Occurrence reporting;<br>Safety culture<br>Just culture;<br>Identifying, avoiding, and reporting hazards;<br>Organisational human-factors programme:<br>professionalism and integrity, error-provoking<br>behaviour, reporting errors, disciplinary policy,<br>error investigation, action to address problems,<br>feedback, assertiveness;<br>Dealing with emergencies. | 2     | 2  | 2      | 2  |
| <b>9.10 The ‘Dirty Dozen’ and risk mitigation</b><br>The ‘Dirty Dozen’: the twelve most common<br>human-factors errors in maintenance:<br>Lack of communication,<br>Lack of teamwork,<br>Lack of assertiveness,<br>Complacency,<br>Fatigue,<br>Stress,<br>Lack of knowledge,<br>Lack of resources,<br>Lack of awareness,<br>Distraction,<br>Pressure,<br>Norms.<br>Risk-mitigation methods.  | 2     | 2  | 2      | 2  |

**MODULE 10. AVIATION LEGISLATION**

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>10.1 Regulatory Framework</b><br>— Role of CAAB and general understanding of civil aviation regulations;<br>— Civil Aviation Act 2017;<br>— Civil Aviation Authority Act 2017;<br>— Relationship between PART-145, PART-66, PART-147 and PART- M;<br>— the relationship between regulations (hard law) and AMC, GM (soft law);<br>— occurrence reporting according to CAAB Regulation<br>— the relationship between the various annexes (parts) relating to Initial and Continuing Airworthiness (such as Part-21, Part-M, Part-145, Part-66, Part-147, Part-IDE) and CAAB Regulations, the Air Operations Regulation (AOC) and the Air Crew Regulation. | 1     | 1  | 1      | 1  |
| <b>10.2 Certifying Staff— Maintenance</b><br>Detailed understanding of Part-66 maintenance licences with the associated privileges and authorisations, and how to exercise them properly for the different aircraft categories.   | 2     | 2  | 2      | 2  |
| <b>10.3 Approved Maintenance Organisations</b><br>General understanding of Part-145 and Part-M Subpart F.   | 2     | 2  | 2      | 2  |
| <b>10.4 Independent certifying staff</b><br>Privileges, responsibilities, record-keeping, limitations, and oversight according to Part-M, Part-66.  | —     | 3  | 3      | 3  |
| <b>10.5 Air Operations</b><br>General understanding of CAAB Regulation (the Air Operations Regulation);<br>Differences between commercial and non-  | 1     | 1  | 1      | 1  |

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| commercial air operations, and their influence on aircraft maintenance;<br>Air Operator Certificates (AOCs) and self-declaration authorisations;<br>Air operator responsibilities, in particular regarding continuing airworthiness and maintenance;<br>Specialised operations / specific approvals: ETOPS, CAT I/II/III, and BRNAV. Minimum Equipment List (MEL) and Configuration Deviation List (CDL);<br>Aircraft placarding and markings;<br>Documents to be carried on board:<br>— Certificate of Airworthiness / Restricted Certificate of Airworthiness;<br>— Airworthiness Review Certificate;<br>— Permit to Fly;<br>— Certificate of Registration;<br>— Noise Certificate;<br>— Weight and Balance report;<br>— Radio Station Licence. |       |    |        |    |
| <b>10.6 Certification of aircraft, parts, and appliances</b><br>Basic understanding of Part-21.   | 2     | 2  | 2      | 2  |
| <b>10.7 Continuing Airworthiness</b><br>General understanding of Part-21 provisions related to continuing airworthiness.<br>General understanding of Part-M.<br>Aircraft Maintenance Programme.   | 2     | 2  | 2      | 2  |
| <b>10.8 Oversight principles in continuing airworthiness General</b><br>145.B.300<br>CAMO.B.300   | 1     | 1  | 1      | 1  |

|   | Level |    |        |    |
|---|-------|----|--------|----|
|   | A     | B1 | B2 B2L | B3 |
| <b>10.9 Maintenance and certification beyond the current CAAB regulations (if not superseded by CAAB requirements)</b><br>Maintenance of aircraft that are not within the scope of CAAB Regulation;<br>Applicable national and international requirements for component maintenance, welding, painting, NDT, etc. (if not superseded by CAAB requirements). | —     | 1  | 1      | 1  |
| <b>10.10 Cybersecurity in aviation maintenance</b><br>Regulation on the introduction of organisation requirements for the management of information security risks related to aeronautical information systems used in civil aviation.  | 1     | 1  | 1      | 1  |

## MODULE 11. AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

|  | Level |    |      |      |    |    |
|--|-------|----|------|------|----|----|
|  | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| <b>11.1 Theory of Flight</b><br>(a) Aeroplane Aerodynamics and Flight Controls<br>Operation and effect of<br>— roll control: ailerons and spoilers;<br>— pitch control: elevators, stabilators, variable incidence stabilisers & canards;<br>— yaw control, rudder limiters;<br>— elevons, ruddervators;<br>— high-lift devices, slots, slats, flaps, flaperons;<br>— drag-inducing devices, spoilers, lift dumpers, speed brakes;<br>— trim tabs, servo tabs, control surface bias. | 1     | 1  | 2    | 2    | —  | 1  |

|   | Level |    |      |      |    |    |
|---|-------|----|------|------|----|----|
|   | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| (b) Aeroplane: other aerodynamic devices  | 1     | 1  | 2    | 2    | —  | 1  |
| Operation and effect of:  |       |    |      |      |    |    |
| — balance and antibalance (leading) tabs;   |       |    |      |      |    |    |
| — spring tabs, mass balance, aerodynamic balance panels;                                |       |    |      |      |    |    |
| — mass balance, aerodynamic balance panels;   |       |    |      |      |    |    |
| — effects of wing fences, saw tooth leading edges;                                      |       |    |      |      |    |    |
| — boundary layer control using vortex generators, stall wedges or leading-edge devices. |       |    |      |      |    |    |
| <b>11.2 Airframe Structures (ATA 51)</b>  |       |    |      |      |    |    |
| (a) General concepts:   | 2     | 2  | 2    | 2    | —  | 2  |
| — Zonal and station identification systems;   |       |    |      |      |    |    |
| — Electrical bonding;   |       |    |      |      |    |    |
| — Lightning strike protection provisions.   |       |    |      |      |    |    |
| (b) Airworthiness requirements for structural strength:                                 | 2     | 2  | 2    | 2    | —  | 2  |
| — Structural classification: primary, secondary, and tertiary;                          |       |    |      |      |    |    |
| — Fail-safe, safe-life, damage-tolerance concepts;                                      |       |    |      |      |    |    |
| — Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue;  |       |    |      |      |    |    |
| — Drains and ventilation provisions;  |       |    |      |      |    |    |
| — System installation provisions.   |       |    |      |      |    |    |

|   | Level |    |      |      |    |    |
|---|-------|----|------|------|----|----|
|   | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| (c) Construction methods  | 1     | 1  | 2    | 2    | —  | 2  |
| — Stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, skinning, anticorrosive protection, wing, empennage and engine attachments; |       |    |      |      |    |    |
| — Structure assembly techniques: riveting, bolting, bonding;  |       |    |      |      |    |    |
| — Methods of surface protection, such as chromating, anodising, painting;   |       |    |      |      |    |    |
| — Surface cleaning;   |       |    |      |      |    |    |
| — Airframe symmetry: methods of alignment and symmetry checks.  |       |    |      |      |    |    |
| <b>11.3 Airframe Structures—Aeroplanes</b>  |       |    |      |      |    |    |
| 11.3.1 Fuselage, doors, windows (ATA 52/53/56)  | 1     | 1  | 2    | 2    | —  | 1  |
| (a) Construction principles   |       |    |      |      |    |    |
| Construction and pressurisation sealing;  |       |    |      |      |    |    |
| Wing, stabiliser, pylon, and undercarriage attachments;   |       |    |      |      |    |    |
| Seat installation and cargo loading system;   |       |    |      |      |    |    |
| Doors and emergency exit: construction, mechanisms, operation and safety devices;   |       |    |      |      |    |    |
| Windows and windscreen construction and mechanisms.   | 1     | 1  | 1    | 1    | —  | 1  |
| (b) Airborne towing devices (glider, banner, target)  | 1     | 1  | 2    | 1    | —  | —  |
| (c) Doors   |       |    |      |      |    |    |
| — Doors and emergency exit: safety devices  |       |    |      |      |    |    |
| — Cargo loading system  |       |    |      |      |    |    |



|  | Level |    |      |      |    |    |
|--|-------|----|------|------|----|----|
|  | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| 11.3.2 <i>Wings (ATA 57)</i><br>Construction;<br>Fuel storage;<br>Landing gear, pylon, control surface and high lift/drag attachments. | 1     | 1  | 2    | 2    | —  | 1  |
| 11.3.3 <i>Stabilisers (ATA 55)</i><br>Construction;<br>Control surface attachment.   | 1     | 1  | 2    | 2    | —  | 1  |
| 11.3.4 <i>Flight Control Surfaces (ATA 55/57)</i><br>Construction and attachment;<br>Balancing — mass and aerodynamic.                 | 1     | 1  | 2    | 2    | —  | 1  |
| 11.3.5 <i>Nacelles/Pylons (ATA 54)</i><br>Nacelles/Pylons:<br>— Construction,<br>— Firewalls,<br>— Engine mounts.                      | 1     | 1  | 2    | 2    | —  | 1  |
| <b>11.4 Air Conditioning and Cabin Pressurisation (ATA 21)</b>   |       |    |      |      |    |    |
| (a) Pressurisation Pressurisation systems;<br>Cabin pressure controllers, control and safety valves;<br>Control and indication;        | 1     | 1  | 3    | 3    | —  | —  |
| (b) Air supply<br>Sources of air supply including engine bleed, APU and ground cart;<br>Distribution systems;                          | 1     | —  | 3    | —    | —  | —  |
| (c) Air Conditioning<br>Air conditioning systems;<br>Air cycle and vapour cycle machines;  | 1     | —  | 3    | —    | —  | —  |

|   | Level |    |      |      |    |    |
|---|-------|----|------|------|----|----|
|   | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| Flow, temperature and humidity control system.                |       |    |      |      |    |    |
| Control and indication control valves                         |       |    |      |      |    |    |
| (d) Safety and warning devices                                | 1     | 1  | 3    | 3    | —  | —  |
| Protection and warning devices.                               |       |    |      |      |    |    |
| (e) Heating and ventilation systems.                          | —     | 1  | —    | 3    | —  | 1  |
| <b>11.5 Instruments/Avionic Systems</b>                       |       |    |      |      |    |    |
| 11.5.1 Instrument Systems (ATA 31)                            | 1     | 1  | 2    | 2    | —  | 2  |
| Pitot-static:   |       |    |      |      |    |    |
| Airspeed indicators,  |       |    |      |      |    |    |
| Vertical speed indicators,                                    |       |    |      |      |    |    |
| Altimeters;   |       |    |      |      |    |    |
| Gyroscopic:   |       |    |      |      |    |    |
| Gyroscopic principles,  |       |    |      |      |    |    |
| Artificial horizons,  |       |    |      |      |    |    |
| Attitude directors,   |       |    |      |      |    |    |
| Direction indicators,   |       |    |      |      |    |    |
| Horizontal situation indicators (HSI),                        |       |    |      |      |    |    |
| Slip indicators, Turn indicators, Turn coordinators;          |       |    |      |      |    |    |
| Compass systems: systems, direct reading, remote reading,     |       |    |      |      |    |    |
| Stall-warning systems and angle-of-attack indicating systems, |       |    |      |      |    |    |
| Glass cockpit,  |       |    |      |      |    |    |
| Indications of other aircraft systems.                        |       |    |      |      |    |    |
| 11.5.2 Avionic Systems  | 1     | 1  | 1    | 1    | —  | 1  |
| Fundamentals of system lay-outs and operation of;             |       |    |      |      |    |    |
| Auto Flight (ATA 22);   |       |    |      |      |    |    |

|  | Level |    |      |      |    |    |
|--|-------|----|------|------|----|----|
|  | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| Communication system (ATA 23);<br>– Very High Frequency (VHF) communications,<br>– High Frequency (HF) communications,<br>– Satellite Communications (SATCOM),<br>– Controller–pilot data link communications (CPDLC),<br>– Audio systems,<br>– Emergency Locator Transmitters (ELTs),<br>– Cockpit Voice Recorder (CVR); Navigation Systems (ATA 34).<br>– Very high frequency omnidirectional range (VOR),<br>– Automatic direction finder (ADF),<br>– Instrument landing system (ILS),<br>– Microwave landing system (MLS),<br>– Flight director systems (FDSs), distance-measuring equipment (DME),<br>– Area navigation (RNAV) systems,<br>– Flight management systems (FMSs),<br>– Satellite navigation systems,<br>– Air traffic control transponder, secondary surveillance radar,<br>– Traffic alert and collision avoidance system (TCAS),<br>– Weather avoidance radar,<br>– Radio altimeter, |       |    |      |      |    |    |

|  | Level |    |      |      |    |    |
|--|-------|----|------|------|----|----|
|  | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| <ul style="list-style-type: none"> <li>– Inertial navigation system (INS),</li> <li>– ARINC (Aeronautical Radio Incorporated) communication and reporting.</li> </ul> <p>Types and uses of avionics general test equipment.</p>  |       |    |      |      |    |    |
| <b>11.6 Electrical Power (ATA 24)</b>  | 1     | 1  | 3    | 3    | —  | 3  |
| <ul style="list-style-type: none"> <li>— Installation and operation of batteries;</li> <li>— DC power generation;</li> <li>— AC power generation;</li> <li>— Emergency power generation;</li> <li>— Voltage regulation;</li> <li>— Power distribution;</li> <li>— Inverters, transformers, rectifiers;</li> <li>— Circuit protection;</li> <li>— External/ground power.</li> </ul> |       |    |      |      |    |    |
| <b>11.7 Equipment and Furnishings (ATA 25)</b>   |       |    |      |      |    |    |
| (a) Emergency equipment  | 2     | 2  | 2    | 2    | —  | 2  |
| Emergency equipment requirements.  |       |    |      |      |    |    |
| (b) Cabin and cargo lay-out;   | 1     | 1  | 1    | 1    | —  | —  |
| Seats, harnesses, and belts;   |       |    |      |      |    |    |
| Cabin lay-out;   |       |    |      |      |    |    |
| Equipment lay-out;   |       |    |      |      |    |    |
| Cabin Furnishing Installation;   |       |    |      |      |    |    |
| Cabin entertainment equipment;   |       |    |      |      |    |    |
| Galley installation;   |       |    |      |      |    |    |
| Cargo handling and retention equipment;  |       |    |      |      |    |    |
| Airstairs.   |       |    |      |      |    |    |

|  | Level |    |      |      |    |    |
|--|-------|----|------|------|----|----|
|  | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| <b>11.8 Fire Protection (ATA 26)</b>                                 | 1     | 1  | 1    | 1    | —  | —  |
| (a) Fire and smoke detection system, and fire-extinguishing systems; |       |    |      |      |    |    |
| — Fire and smoke detection and warning systems;                      |       |    |      |      |    |    |
| — Fire-extinguishing systems;  |       |    |      |      |    |    |
| — System tests.  |       |    |      |      |    |    |
| (b) Portable fire extinguisher                                       | 1     | 1  | 1    | 1    | —  | 1  |
| <b>11.9 Flight Controls (ATA 27)</b>                                 |       |    |      |      |    |    |
| (a) Primary and secondary flight controls:                           | 1     | 1  | 3    | 3    | —  | 2  |
| — Primary controls: aileron, elevator, rudder, spoiler;              |       |    |      |      |    |    |
| — Trim control, trim tabs;   |       |    |      |      |    |    |
| — High-lift devices;   |       |    |      |      |    |    |
| — System operation: manual;  |       |    |      |      |    |    |
| — Gust locks and gust lock systems;                                  |       |    |      |      |    |    |
| — Artificial feel, yaw damper, Mach trim, rudder limiter;            |       |    |      |      |    |    |
| — Stall-warning systems.   |       |    |      |      |    |    |
| (b) Actuation and protection:  | 1     | —  | 3    | —    | —  | —  |
| — Active load control;   |       |    |      |      |    |    |
| — Lift dump, speed brakes;   |       |    |      |      |    |    |
| — Hydraulic, pneumatic systems;                                      |       |    |      |      |    |    |
| — Stall-protection systems.  | 1     | —  | 3    | —    | —  | —  |
| (c) System operation:  |       |    |      |      |    |    |
| Electrical systems, fly-by-wire systems.                             |       |    |      |      |    |    |
| (d) Balancing and rigging  | 1     | 1  | 3    | 3    | —  | 2  |

|  | Level |    |      |      |    |    |
|--|-------|----|------|------|----|----|
|  | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| <b>11.10 Fuel Systems (ATA 28, ATA 47)</b> |       |    |      |      |    |    |
| (a) System:                                | 1     | 1  | 3    | 3    | —  | 1  |
| — System layout;                           |       |    |      |      |    |    |
| — Fuel tanks;                              |       |    |      |      |    |    |
| — Supply systems.                          |       |    |      |      |    |    |
| (b) Fuel Handling:                         | 1     | 1  | 3    | 3    | —  | 1  |
| — Cross-feed and transfer;                 |       |    |      |      |    |    |
| — Refuelling and defuelling;               |       |    |      |      |    |    |
| (c) Indications and warnings;              | 1     | 1  | 3    | 3    | —  | 1  |
| (d) Special System:                        | 1     | —  | 3    | —    | —  | —  |
| — Dumping, venting and draining;           |       |    |      |      |    |    |
| — Inert gas systems                        |       |    |      |      |    |    |
| (e) Balancing:                             | 1     | —  | 3    | —    | —  | —  |
| Longitudinal balance fuel systems.         |       |    |      |      |    |    |
| <b>11.11 Hydraulic Power (ATA 29)</b>      |       |    |      |      |    |    |
| (a) System description:                    | 1     | 1  | 3    | 3    | —  | 2  |
| System layout;                             |       |    |      |      |    |    |
| Hydraulic fluids;                          |       |    |      |      |    |    |
| Hydraulic reservoirs and accumulators;     |       |    |      |      |    |    |
| Filters:                                   |       |    |      |      |    |    |
| Power distribution;                        |       |    |      |      |    |    |
| (b) System Operation (1):                  | 1     | 1  | 3    | 3    | —  | 2  |
| Pressure generation: electric, mechanical  |       |    |      |      |    |    |
| Pressure Control;                          |       |    |      |      |    |    |
| Indication and warning systems;            |       |    |      |      |    |    |
| Servicing                                  |       |    |      |      |    |    |
| (c) System Operation (2):                  | 1     | —  | 3    | —    | —  | —  |
| Pressure generation: pneumatic;            |       |    |      |      |    |    |
| Emergency pressure generation;             |       |    |      |      |    |    |
| Interface with other systems.              |       |    |      |      |    |    |

|   | Level |    |      |      |    |    |
|---|-------|----|------|------|----|----|
|   | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| <b>11.12 Ice and Rain Protection (ATA 30)</b>   | 1     | 1  | 3    | 3    | —  | 1  |
| (a) Principles:<br>Ice formation, classification, and detection.  |       |    |      |      |    |    |
| (b) De-icing:<br>De-icing systems: electrical, hot-air, pneumatic, chemical;<br>Probe and drain heating.  | 1     | 1  | 3    | 3    | —  | 1  |
| (c) Anti-icing:<br>Anti-icing systems: electrical, hot-air, chemical.   | 1     | —  | 3    | —    | —  | —  |
| (d) Wipers:<br>Wiper systems.   | 1     | 1  | 3    | 3    | —  | 1  |
| (e) Rain-repellent systems.   | 1     | —  | 3    | —    | —  | —  |
| <b>11.13 Landing Gear (ATA 32)</b>  |       |    |      |      |    |    |
| (a) Description:<br>Construction, shock absorbing;<br>Tyres;  | 2     | 2  | 3    | 3    | —  | 2  |
| (b) System:<br>Extension and retraction systems:<br>normal and emergency;<br>Indications and warning;<br>Wheels, brakes, antiskid and autobraking;<br>Steering. | 2     | 2  | 3    | 3    | —  | 2  |
| (c) Air-ground sensing.   | 2     | —  | 3    | —    | —  | —  |
| (d) Tail protection:<br>Skids   | 2     | 2  | 3    | 3    | —  | 2  |
| <b>11.14 Lights (ATA 33)</b>  |       |    |      |      |    |    |
| External: navigation, anti-collision, landing, taxiing, ice;<br>Internal: cabin, cockpit, cargo;<br>Emergency.  | 2     | 2  | 3    | 3    | —  | 2  |

|  | Level |    |      |      |    |    |
|--|-------|----|------|------|----|----|
|  | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| <b>11.15 Oxygen (ATA 35)</b><br>System layout: cockpit, cabin;<br>Sources, storage, charging and distribution;<br>Supply regulation;<br>Indications and warnings;  | 1     | 1  | 3    | 3    | —  | 2  |
| <b>11.16 Pneumatic / Vacuum (ATA 36)</b><br>(a) Systems:<br>System layout<br>Sources: engine / APU (Auxiliary Power Unit), compressors, reservoirs, ground supply.<br>Pressure control.<br>Distribution.<br>Indications and warnings.<br>Interfaces with other systems | 1     | 1  | 3    | 3    | —  | 2  |
| (b) Pumps:<br>Pressure and vacuum pumps.   | 1     | 1  | 3    | 3    | —  | 2  |
| <b>11.17 Water/Waste (ATA 38)</b><br>(a) System:<br>Water system layout, supply, distribution, servicing and draining;<br>Toilet system lay-out, flushing and servicing;   | 2     | 2  | 3    | 3    | —  | 2  |
| (b) Corrosion:<br>Corrosion aspects.   | 2     | 2  | 3    | 3    | —  | 2  |
| <b>11.18 On Board Maintenance Systems (ATA 45)</b><br>Central maintenance computers;<br>Data loading system;<br>Electronic library system;<br>Printing systems;<br>Structure monitoring (damage tolerance monitoring).   | 1     | 0  | 2    | —    | —  | —  |



|   | Level |    |      |      |    |    |
|---|-------|----|------|------|----|----|
|   | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| <b>11.19 Integrated Modular Avionics (ATA 42)</b><br>(a) Overall system description and theory;<br>Core system; network components;<br>Functions that may be typically integrated in the integrated modular avionics (IMA) modules are, among others:   | 1     | —  | 2    | —    | —  | —  |
| Bleed management, air pressure control, air ventilation and control, avionics and cockpit ventilation control, temperature control, air traffic communication, avionics communication router, electrical load management, circuit breaker monitoring, electrical system BITE, fuel management, braking control, steering control, landing gear extension and retraction, tyre pressure indication, oleo pressure indication, brake temperature monitoring, etc. | 1     | —  | 2    | —    | —  | —  |
| (b) Typical system layout.<br><b>11.20 Cabin Systems (ATA-44)</b><br>System architecture, operation, and control of systems for:  | 1     | —  | 2    | —    | —  | —  |
| — passenger in-flight entertainment;<br>— communication within the aircraft (Cabin intercommunication data system (CIDS);<br>— communication between the aircraft cabin and ground stations;<br>— including voice, data, music, and video transmission.   |       |    |      |      |    |    |

|   | Level |    |      |      |    |    |
|---|-------|----|------|------|----|----|
|   | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| <p>CIDS interface between cockpit/cabin crew and cabin systems.</p> <p>Data exchange between the different related line replaceable units (LRUs).</p> <p>Flight attendant panels (FAPs).</p> <p>Cabin network server (CNS) and interfaces with the following systems:</p> <ul style="list-style-type: none"> <li>— Data/radio communication;</li> <li>— Cabin core system (CCS);</li> <li>— In-flight entertainment system (IFES);</li> <li>— External communication system (ECS);</li> <li>— Cabin mass memory system (CMMS);</li> <li>— Cabin monitoring system (CMS);</li> <li>— Miscellaneous cabin systems (MCSs); and</li> <li>— Other systems.</li> </ul> <p>Cabin network server (CNS) hosting functions:</p> <ul style="list-style-type: none"> <li>— Access to predeparture/departure reports;</li> <li>— Email/intranet/internet access; passenger database;</li> <li>— In-flight entertainment system;</li> <li>— External communication system;</li> <li>— Cabin mass memory system;</li> <li>— Cabin monitoring system;</li> <li>— Miscellaneous cabin system.</li> </ul> |       |    |      |      |    |    |

|   | Level |    |      |      |    |    |
|---|-------|----|------|------|----|----|
|   | A1    | A2 | B1.1 | B1.2 | B2 | B3 |
| <b>11.21 Information Systems (ATA46)</b><br>System architecture, operation, and control of:<br>— Storage and electronic library;<br>— Updating;<br>— Retrieving of digital information;<br>— Air traffic and information management systems (ATIMS) and network server systems;<br>— Aircraft general information system;<br>— Flight deck information system;<br>— Maintenance information system;<br>— Passenger cabin information system;<br>— Miscellaneous information systems;<br>— Other linked systems. | 1     | —  | 2    | —    | —  | —  |

## MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS

|   | Level |           |    |
|---|-------|-----------|----|
|   | A3 A4 | B1.3 B1.4 | B2 |
| <b>12.1 Theory of Flight—Rotary Wing Aerodynamics</b><br>Terminology;<br>Effects of gyroscopic precession;<br>Torque reaction and directional control;<br>Dissymmetry of lift, Blade tip stall;<br>Translating tendency and its correction;<br>Coriolis effect and compensation;<br>Vortex ring state, power settling, overpitching;<br>Auto-rotation;<br>Ground effect.  | 1     | 2         | —  |
| <b>12.2 Flight Control Systems (ATA 67)</b><br>Cyclic control;<br>Collective control;<br>Swashplate;<br>Yaw control: Anti-Torque Control, Tail rotor, bleed air;<br>Main Rotor Head: Design and Operation features;<br>Blade Dampers: Function and construction;<br>Rotor Blades: Main and tail rotor blade construction and attachment;<br>Trim control, fixed and adjustable stabilisers;<br>System operation: manual, hydraulic, electrical and fly-by-wire;<br>Artificial feel;<br>Balancing and Rigging. | 2     | 3         | —  |
| <b>12.3 Blade Tracking and Vibration Analysis</b><br>Rotor alignment;<br>Main and tail rotor tracking;  | 1     | 3         | —  |

|   | Level |           |    |
|---|-------|-----------|----|
|   | A3 A4 | B1.3 B1.4 | B2 |
| Static and dynamic balancing;<br>Vibration types, vibration reduction methods;<br>Ground resonance.   |       |           |    |
| <b>12.4 Transmissions</b><br>Gear boxes, main and tail rotors;<br>Clutches, free wheel units and rotor brake;<br>Tail rotor drive shafts, flexible couplings,<br>bearings, vibration dampers and bearing hangers.   | 1     | 3         | —  |
| <b>12.5 Airframe Structures</b><br>(a) General concept:<br>Airworthiness requirements for structural strength;<br>Structural classification, primary, secondary and tertiary;<br>Fail safe, safe life, damage tolerance concepts;<br>Zonal and station identification systems;<br>Stress, strain, bending, compression, shear,<br>torsion, tension, hoop stress, fatigue;<br>Drains and ventilation provisions;<br>System installation provisions;<br>Lightning strike protection provision | 2     | 2         | —  |
| (b) Construction methods for the principal elements:<br>Stressed skin fuselage, formers, stringers,<br>longerons, bulkheads, frames, doublers, struts, ties,<br>beams, floor structures, reinforcement, methods of<br>skinning and anti-corrosive protection.<br>Pylon, stabiliser and undercarriage attachments;<br>Seat installation;<br>Doors: construction, mechanisms, operation and<br>safety devices;<br>Windows and windscreen construction;  | 1     | 2         | —  |

|   | Level |           |    |
|---|-------|-----------|----|
|   | A3 A4 | B1.3 B1.4 | B2 |
| Fuel storage;<br>Firewalls;<br>Engine mounts;<br>Structure assembly techniques: riveting, bolting, bonding;<br>Methods of surface protection, such as chromating, anodising, painting;<br>Surface cleaning.<br>Airframe symmetry: methods of alignment and symmetry checks. |       |           |    |
| <b>12.6 Air Conditioning (ATA 21)</b>   |       |           |    |
| 12.6.1 Air supply:  | 1     | 2         | —  |
| Sources of air supply including engine bleed and ground cart;   |       |           |    |
| 12.6.2 Air-Conditioning:  | 1     | 3         | —  |
| Air-conditioning systems;   |       |           |    |
| Distribution systems;   |       |           |    |
| Flow and temperature control systems;   |       |           |    |
| Protection and warning devices.   |       |           |    |
| <b>12.7 Instruments/Avionic Systems</b>   |       |           |    |
| 12.7.1 Instrument Systems (ATA 31)  | 1     | 2         | —  |
| Pitot-static: altimeter, air speed indicator, vertical speed indicator;   |       |           |    |
| Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal  |       |           |    |
| situation indicator, turn and slip indicator, turn coordinator;   |       |           |    |
| Compasses: direct reading, remote reading;  |       |           |    |
| Vibration indicating systems / health and usage monitoring systems (HUMSs);   |       |           |    |

|   | Level |           |    |
|---|-------|-----------|----|
|   | A3 A4 | B1.3 B1.4 | B2 |
| <p>Glass cockpit;</p> <p>Indications of other aircraft systems.</p> <p>12.7.2 Avionic Systems</p> <p>Fundamentals of system layouts and operation of:</p> <p>Auto Flight (ATA 22);</p> <p>Communications (ATA 23);</p> <p>— Very high frequency (VHF) communications,</p> <p>— High-frequency (HF) communications,</p> <p>— Satellite communications (SATCOM),</p> <p>— Controller–pilot data link communications (CPDLC),</p> <p>— Audio systems,</p> <p>— Emergency locator transmitters (ELTs),</p> <p>— Cockpit voice recorder (CVR);</p> <p>Navigation Systems (ATA 34).</p> <p>— Very high frequency omnidirectional range (VOR),</p> <p>— Automatic direction finding (ADF),</p> <p>— Instrument landing system (ILS),</p> <p>— Microwave landing system (MLS),</p> <p>— Flight director systems (FDSs), distance-measuring equipment (DME),</p> <p>— Area navigation (RNAV) systems,</p> <p>— Flight management systems (FMSs),</p> <p>— Satellite navigation systems,</p> <p>— Inertial navigation system (INS),</p> <p>— Air traffic control transponder, secondary surveillance radar,</p> <p>— Traffic alert and collision avoidance system (TCAS),</p> | 1     | 1         | —  |

|  | Level |           |    |
|--|-------|-----------|----|
|  | A3 A4 | B1.3 B1.4 | B2 |
| <ul style="list-style-type: none"> <li>— Weather avoidance radar,</li> <li>— Radio altimeter,</li> <li>— ARINC communication and reporting.</li> </ul> <p>Types and uses of general test equipment for avionics.</p>   |       |           |    |
| <p><b>12.8 Electrical Power (ATA 24)</b></p> <p>Installation and operation of batteries;<br/>DC power generation, AC power generation;<br/>Emergency power generation;<br/>Voltage regulation, Circuit protection.<br/>Power distribution;<br/>Inverters, transformers, rectifiers;<br/>External/Ground power.</p> | 1     | 3         | —  |
| <p><b>12.9 Equipment and Furnishings (ATA 25)</b></p> <p>(a) Emergency equipment requirements; Seats, harnesses and belts; Lifting systems.</p>  | 2     | 2         | —  |
| <p>(b) Emergency flotation systems;<br/>Cabin lay-out, cargo retention;<br/>Equipment lay-out;<br/>Cabin Furnishing Installation.</p>  | 1     | 1         | —  |
| <p><b>12.10 Fire Protection (ATA 26)</b></p> <p>(a) Fire and smoke detection and warning systems;<br/>Fire-extinguishing systems;<br/>System tests.</p>  | 1     | 3         | —  |
| <p>(b) Portable fire extinguishers.</p>  | 1     | 3         | —  |
| <p><b>12.11 Fuel Systems (ATA 28)</b></p> <p>System lay-out;<br/>Fuel tanks;</p>   | 1     | 3         | —  |



|  | Level |           |    |
|--|-------|-----------|----|
|  | A3 A4 | B1.3 B1.4 | B2 |
| Supply systems;<br>Dumping, venting and draining;<br>Cross-feed and transfer;<br>Indications and warnings;<br>Refuelling and defuelling.<br><b>12.12 Hydraulic Power (ATA 29)</b><br>System lay-out;<br>Hydraulic fluids;<br>Hydraulic reservoirs and accumulators;<br>Pressure generation: electric, mechanical, pneumatic;<br>Emergency pressure generation;<br>Filters;<br>Pressure Control;<br>Power distribution;<br>Indication and warning systems;<br>Interface with other systems.<br>Servicing. | 1     | 3         | —  |
| <b>12.13 Ice and Rain Protection (ATA 30)</b><br>Ice formation, classification and detection;<br>Anti-icing and de-icing systems: electrical, hot air and chemical; Rain repellant and removal;<br>Probe and drain heating.<br>Wiper system  | 1     | 3         | —  |
| <b>12.14 Landing Gear (ATA 32)</b><br>(a) System description and operation:<br>Construction, shock absorbing;<br>Extension and retraction systems: normal and emergency;<br>Wheels, tyres, brakes; Steering<br>Skids, floats.  | 2     | 3         | —  |

|  | Level |           |    |
|--|-------|-----------|----|
|  | A3 A4 | B1.3 B1.4 | B2 |
| (b) Sensors:<br>Indications and warning;<br>Air ground sensing.  |       |           |    |
| <b>12.15 Lights (ATA 33)</b>   | 2     | 3         | —  |
| External: navigation, landing, taxiing, ice;   |       |           |    |
| Internal: cabin, cockpit, cargo;   |       |           |    |
| Emergency.   |       |           |    |
| <b>12.16 Reserved</b>  | —     | —         | —  |
| <b>12.17 Integrated Modular Avionics (ATA 42)</b>  | 1     | 2         | —  |
| (a) Overall system description and theory:<br>Functions that may be typically integrated in the integrated modular avionics (IMA) modules:<br><br>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, steering control, landing gear extension and retraction, tyre pressure indication, oleo pressure indication, brake temperature monitoring, etc.;<br><br>Core System;<br>Network Components. |       |           |    |
| (b) Typical system layouts.  | 1     | 2         | —  |
| <b>12.18 On Board Maintenance Systems (ATA 45)</b>   | 1     | 2         | —  |
| Central maintenance computers;   |       |           |    |
| Data loading system;   |       |           |    |
| Electronic library system;   |       |           |    |

|   | Level |           |    |
|---|-------|-----------|----|
|   | A3 A4 | B1.3 B1.4 | B2 |
| <b>12.19 Information Systems (ATA 46)</b><br><br>The units and components which furnish a means of storing, updating, and retrieving digital information traditionally provided on paper, microfilm or microfiche. They include units that are dedicated to the information storage and retrieval function, such as the electronic library mass storage and controller. They do not include units or components installed for other uses and shared with other systems, such as flight deck printer or general-use display.<br><br>Typical examples include air traffic and information management systems and network server systems.<br><br>Aircraft general information system.<br>Flight deck information system.<br>Maintenance information system.<br>Miscellaneous information system. | 1     | 2         | —  |

### MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

|   | Level  |
|---|--------|
|   | B2 B2L |
| <b>13.1 Theory of Flight</b>  |        |
| (a) <i>Aeroplane Aerodynamics and Flight Controls</i><br>Operation and effect of:<br>— roll control: ailerons and spoilers;<br>— pitch control: elevators, stabilators, variable incidence stabilisers and canards; and<br>— yaw control: rudder limiters;<br>— control using elevons, ruddervators;<br>— high-lift devices: slots, slats, flaps;<br>— drag-inducing devices: spoilers, lift dumpers, speed brakes;<br>— trim tabs, servo tabs, and control surface bias. | 1      |
| (b) <i>Rotary wing aerodynamics Terminology</i> ;<br>Operation and effect of cyclic, collective, and antitorque controls.   | 1      |
| <b>13.2 Structures — General Concepts</b>   |        |
| (a) General concepts;<br>Zonal and station identification systems;<br>Electrical bonding;<br>Lightning strike protection provisions.  | 2      |
| (b) Fundamentals of structural systems.   | 1      |
| <b>13.3 Autoflight (ATA 22)</b>   |        |
| (a) Fundamentals of automatic flight control:<br>— Working principles and current terminology;<br>— Command signal processing;<br>— Modes of operation: roll, pitch, and yaw channels;<br>— Yaw dampers;<br>— Stability augmentation system in helicopters;<br>— Automatic trim control;<br>— Autopilot navigation aids interface.  | 3      |

|   | Level  |
|---|--------|
|   | B2 B2L |
| (b) Autothrottle systems and Automatic Landing Systems:<br>— Principles and categories;<br>— Modes of operation;<br>— Approach;<br>— Glideslope;<br>— Land, go-around;<br>— System monitors and failure conditions.   | 3      |
| <b>13.4 Communication/Navigation (ATA 23/34)</b>  |        |
| (a) Fundamentals of communication and navigation systems:<br>— Radio wave propagation, antennas, transmission lines, communication, receiver, and transmitter;<br>Working principles of the following systems:<br>— Very high frequency (VHF) communications;<br>— High-frequency (HF) communications;<br>— Satellite communications (SATCOM);<br>— Controller–pilot data link communications (CPDLC);<br>— Audio systems;<br>— Emergency locator transmitters (ELTs);<br>— Cockpit voice recorder (CVR);<br>— Very high frequency omnidirectional range (VOR);<br>— Automatic direction finding (ADF);<br>— Instrument landing system (ILS);<br>— Flight director systems (FDSs), distance-measuring equipment (DME);<br>— Area navigation (RNAV) systems;<br>— Flight management systems (FMSs);<br>— Global navigation satellite systems (GNSSs), Global Positioning System (GPS), ground-based augmentation system (GBAS), satellite-based augmentation system (SBAS) such as the European geostationary navigation overlay service (EGNOS) and the wide area augmentation system (WAAS);<br>— Data link and two-way data link. | 3      |

|   | Level                               |
|---|-------------------------------------|
|   | B2 B2L                              |
| <p>(b) Fundamentals of aircraft surveillance systems:</p> <ul style="list-style-type: none"> <li>— Air traffic control transponder, secondary surveillance radar;</li> <li>— Traffic alert and collision avoidance system (TCAS);</li> <li>— Weather avoidance radar;</li> <li>— Radio altimeter;</li> <li>— Automatic dependent surveillance — broadcast (ADS-B) and its other associated services such as FIS-B, TIS-B and multilink;</li> <li>— Inertial navigation system (INS);</li> <li>— ARINC (Aeronautical Radio Incorporated) communication and reporting.</li> </ul> <p><b>13.5 Electrical Power (ATA 24)</b></p> <ul style="list-style-type: none"> <li>— Installation and operation of batteries;</li> <li>— DC power generation;</li> <li>— AC power generation;</li> <li>— Emergency power generation;</li> <li>— Voltage regulation;</li> <li>— Power distribution;</li> <li>— Inverters, transformers, rectifiers;</li> <li>— Circuit protection;</li> <li>— External/ground power.</li> </ul> <p><b>13.6 Equipment and Furnishings (ATA 25)</b></p> <p>Electronic emergency equipment requirements;</p> <p><b>13.7 Flight Controls (ATA 27)</b></p> <p>(a) Primary and secondary flight controls (ATA 27):</p> <ul style="list-style-type: none"> <li>— Primary controls: aileron, elevator, rudder, spoiler;</li> <li>— Trim control: trim tabs;</li> <li>— High-lift devices;</li> <li>— System operation: manual;</li> <li>— Gust locks and gust lock systems;</li> <li>— Artificial feel, yaw damper, Mach trim, rudder limiter;</li> <li>— Stall-warning systems.</li> </ul> | <p>3</p> <p>3</p> <p>2</p> <p>2</p> |

|   | Level              |
|---|--------------------|
|   | B2 B2L             |
| (b) Actuation and protection:<br>— Active load control;<br>— Lift dump, speed brakes;<br>— Hydraulic, pneumatic systems;<br>— Stall-protection systems.   | 3<br><br><br><br>2 |
| (c) System operation:<br>— System operation: electrical, fly-by-wire.   |                    |
| (d) Rotorcraft flight controls (ATA 67):<br>Rotorcraft controls: cyclic control, collective control, swashplate, yaw control.   |                    |
| <b>13.8 Instrument Systems (ATA 31)</b><br>— Classification;<br>— Atmosphere;<br>— Terminology;<br>— Pressure-measuring devices and systems;<br>— Pitot-static systems;<br>— Altimeters;<br>— Vertical speed indicators;<br>— Airspeed indicators;<br>— Machmeters;<br>— Altitude-reporting/-alerting systems;<br>— Air-data computers;<br>— Instrument pneumatic systems;<br>— Direct-reading pressure and temperature gauges;<br>— Temperature-indicating systems;<br>— Gyroscopic principles;<br>— Artificial horizons;<br>— Slip indicators;<br>— Directional gyros;<br>— Ground proximity warning systems (GPWSs);<br>— Compass systems; | 3                  |

|   | Level  |
|---|--------|
|   | B2 B2L |
| <ul style="list-style-type: none"> <li>— Flight data recording systems (FDRSs);</li> <li>— Electronic flight instrument systems (EFISs)</li> <li>— typical system arrangements and cockpit layout;</li> <li>— Instrument warning systems, including master warning systems and centralised warning panels;</li> <li>— Stall-warning systems and angle-of-attack indicating systems;</li> <li>— Vibration measurement and indication;</li> <li>— Glass cockpit;</li> <li>— Types and uses of general test equipment for avionics.</li> </ul> |        |
| <b>13.9 Lights (ATA 33)</b>   | 3      |
| External: navigation, anticollision, landing, taxiing, ice;   |        |
| Internal: cabin, cockpit, cargo;  |        |
| Emergency.  |        |
| <b>13.10 On board Maintenance Systems (ATA 45)</b>  | 3      |
| Central maintenance computers;  |        |
| Data-loading system;  |        |
| Electronic library system;  |        |
| Printing system;  |        |
| Structure monitoring system (damage-tolerance monitoring).  |        |
| <b>13.11 Air Conditioning and Cabin Pressurisation (ATA21)</b>  |        |
| (a) <i>Pressurisation:</i>  | 3      |
| — Pressurisation systems;   |        |
| — Cabin pressure controllers, control and safety valves;  |        |
| — Control and indication  |        |
| (b) Air supply:   | 1      |
| Sources of air supply including engine bleed, APU and ground cart;  | 3      |
| Distribution systems;   | 3      |
| (c) Air Conditioning  |        |
| (d) Safety and warning devices  |        |



|   | Level  |
|---|--------|
|   | B2 B2L |
| <b>13.12 Fire Protection (ATA 26)</b>   | 3      |
| (a) Fire and smoke detection system and fire-extinguishing systems;<br>— Fire and smoke detection and warning systems;<br>— Fire-extinguishing systems;<br>— System tests.; | 1      |
| (b) Portable fire extinguisher.   |        |
| <b>13.13 Fuel Systems (ATA 28 &amp; 47)</b>   |        |
| (a) System layout:<br>System layout;<br>Fuel tanks;<br>Supply systems.  | 1      |
| (b) Fuel handling;<br>Cross-feed and transfer;<br>Refuelling and defuelling.  | 2      |
| (c) Indications and warnings.   | 3      |
| (d) Special systems:<br>Dumping, venting and draining;<br>Inert gas systems.  | 1      |
| (e) Balancing:<br>Longitudinal balance fuel systems.  | 3      |
| <b>13.14 Hydraulic Power (ATA 29)</b>   |        |
| (a) System layout:<br>System layout;<br>Hydraulic fluids;<br>Hydraulic reservoirs and accumulators;<br>Filters;<br>Power distribution.                                      | 1      |
| (b) System operation (1):<br>Pressure generation: electric and mechanical;<br>Pressure control;<br>Indication and warning systems;<br>Servicing.                            |        |

|   | Level              |
|---|--------------------|
|   | B2 B2L             |
| (c) System operation (2):<br>Pressure generation: pneumatic;<br>Emergency pressure generation;<br>Interface with other systems.                                 |                    |
| <b>13.15 Ice and Rain Protection (ATA 30)</b>   |                    |
| (a) Principles:<br>Ice formation, classification, and detection.  | 3                  |
| (b) De-icing:<br>De-icing systems: electrical, hot-air, pneumatic, and chemical;<br>Probe and drain heating.  |                    |
| (c) Anti-icing:<br>Anti-icing systems: electrical, hot-air, and chemical.   | 3                  |
| (d) Wiper systems.  |                    |
| (e) Rain repellent.   |                    |
| <b>13.16 Landing Gear (ATA 32)</b>  |                    |
| (a) Description:<br>Construction, shock absorbing;<br>Tyres;  | 2                  |
| (b) Systems;<br>Extension and retraction systems: normal and emergency;<br>Indications and warnings;<br>Wheels, brakes, antiskid, and autobraking;<br>Steering. | 3<br><br><br><br>2 |
| (c) Air-ground sensing  |                    |
| <b>13.17 Oxygen (ATA 35)</b>  | 1                  |
| System lay-out: cockpit, cabin;   | 1                  |
| Sources, storage, charging and distribution;  |                    |
| Supply regulation;  |                    |
| Indications and warnings  | 1                  |

|  | Level  |
|--|--------|
|  | B2 B2L |
| <b>13.18 Pneumatic/Vacuum (ATA 36)</b><br>— System lay-out;<br>— Sources: engine/APU, compressors, reservoirs, ground supply;<br>— Pressure control;<br>— Distribution;<br>— Indications and warnings;<br>— Interfaces with other systems.   | 3      |
| <b>13.19 Water/Waste (ATA 38)</b><br>— Water system lay-out, supply, distribution, servicing and draining;<br>— Toilet system lay-out, flushing and servicing.   | 2      |
| <b>13.20 Integrated Modular Avionics (IMA) (ATA 42)</b><br>(a) Overall system description and theory:<br>Core system;<br>Network components.<br>Note: Functions that may be typically integrated into the integrated modular avionics (IMA) modules are, among others:<br>— Bleed management;<br>— Air pressure control;<br>— Air ventilation and control;<br>— Avionics and cockpit ventilation control, temperature control;<br>— Air traffic communication;<br>— Avionics communication router;<br>— Electrical load management;<br>— Circuit breaker monitoring;<br>— Electrical system built-in test equipment (BITE);<br>— Fuel management;<br>— Braking control;<br>— Steering control;<br>— Landing gear extension and retraction; | 2      |
|  | 3      |

|  | Level             |
|--|-------------------|
|  | B2 B2L            |
| <p>— Tyre pressure indication;</p> <p>— Oleo pressure indication;</p> <p>— Brake temperature monitoring.</p> <p>(b) Typical system layouts.</p> <p><b>13.21 Cabin Systems (ATA 44)</b></p> <p>System architecture, operation and control of systems for:</p> <p>— passenger in-flight entertainment;</p> <p>— communication within the aircraft (cabin intercommunication data system (CIDS);</p> <p>— communication between the aircraft cabin and ground stations, including voice, data, music and video transmission. CIDS interface between cockpit/cabin crew and cabin systems;</p> <p>Data exchange between the different related line replaceable units (LRUs);</p> <p>Flight attendant panels (FAPs).</p> <p>CNS server and interfaces with the following systems:</p> <p>— Data/radio communication system;</p> <p>— Cabin core system (CCS);</p> <p>— In-flight entertainment system (IFES);</p> <p>— External communication system (ECS);</p> <p>— Cabin mass memory system (CMMS);</p> <p>— Cabin monitoring system (CMS);</p> <p>— Miscellaneous cabin systems (MCSs).</p> <p>The CNS may host functions such as:</p> <p>— access to predeparture/departure reports;</p> <p>— email/intranet/internet access;</p> <p>— passenger database.</p> <p><b>13.22 Information Systems (ATA 46)</b></p> <p>The units and components which furnish a means of storing, updating, and retrieving digital information traditionally provided on paper, microfilm or microfiche. They include units that are dedicated to the information storage and retrieval function, such as the</p> | <p>3</p> <p>3</p> |

|  | Level  |
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|  | B2 B2L |
| <p>electronic library mass storage and controller, but they do not include units or components installed for other uses and shared with other systems, such as flight deck printer or general-use display.</p> <p>Typical examples include:</p> <ul style="list-style-type: none"> <li>— air traffic and information management systems and network server systems;</li> <li>— aircraft general information system;</li> <li>— flight deck information system;</li> <li>— maintenance information system;</li> <li>— passenger cabin information system;</li> <li>— miscellaneous information systems;</li> <li>— other linked systems.</li> </ul> | 3      |

**MODULE 14 - PROPULSION**

|   | Level |    |        |
|---|-------|----|--------|
|   | A     | B1 | B2 B2L |
| <b>14.1 Engines</b>   |       |    |        |
| (a) Constructional arrangement and operation of turbojet, turbofan, turboshaft, and turboprop engines.                          | —     | —  | 1      |
| (b) Constructional arrangement and operation of auxiliary power units (APUs).   | —     | —  | 1      |
| (c) Constructional arrangement and operation of piston engines.   | —     | —  | 1      |
|   | —     | —  | 2      |
| (d) Constructional arrangement and operation of electric and hybrid engines, their electric energy storage and control systems. |       |    |        |
| (e) Electronic Engine control and fuel metering systems (full authority digital engine control (FADEC)).                        | —     | —  | 2      |
| <b>14.2 Electric/electronic engine indication systems</b>   | —     | —  | 2      |
| — Exhaust gas temperature / interstage turbine temperature systems;   |       |    |        |
| — Cylinder head temperature, engine coolant temperature, engine speed;  |       |    |        |
| — Engine thrust indication: engine pressure ratio, engine turbine discharge pressure or jet pipe pressure systems;              |       |    |        |
| — Vibration measurement systems;  |       |    |        |
| — Oil pressure and temperature;   |       |    |        |
| — Fuel pressure, temperature, and flow;   |       |    |        |
| — Manifold pressure;  |       |    |        |
| — Engine torque.  |       |    |        |
| <b>14.3 Propeller Systems</b>   | —     | —  | 2      |
| — Propeller speed indication;   |       |    |        |
| — Speed control and pitch change methods  |       |    |        |

|  | Level |    |        |
|--|-------|----|--------|
|  | A     | B1 | B2 B2L |
| — electrical/electronic;<br>— Synchronising and synchrophasing equipment;<br>— Electrical anti-icing/de-icing equipment.<br><b>14.4 Starting and Ignition Systems</b><br>— Operation of engine start systems and components;<br>— Ignition systems and components;<br>— Maintenance safety requirements. | —     | —  | 2      |

### MODULE 15 - GAS TURBINE ENGINE

|   | Level |    |    |
|---|-------|----|----|
|   | A     | B1 | B2 |
| <b>15.1 Fundamentals</b><br>— Potential energy, kinetic energy, Newton's laws of motion, Brayton cycle;<br>— The relationship between force, work, power, energy, velocity, and acceleration;<br>— Constructional arrangement and operation of turbojet, turbofan, turboshaft, turboprop, and geared turbofan engines.  | 1     | 2  | —  |
| <b>15.2 Engine Performance</b><br>— Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust, thrust horsepower, equivalent shaft horsepower, specific fuel consumption;<br>— Engine efficiencies;<br>— By-pass ratio and engine pressure ratio;<br>— Pressure, temperature, and velocity of the gas flow;<br>— Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating, limitations. | —     | 2  | —  |
| <b>15.3 Inlet</b><br>— Compressor inlet ducts;<br>— Effects of various inlet configurations;<br>— Ice protection.   | 2     | 2  | —  |

|   | Level |    |    |
|---|-------|----|----|
|   | A     | B1 | B2 |
| <b>15.4 Compressors</b>   | 1     | 2  | —  |
| — Axial and centrifugal types;  |       |    |    |
| — Constructional features, operating principles, and applications;  |       |    |    |
| — Fan balancing;  |       |    |    |
| — Operation:  |       |    |    |
| ○ Causes and effects of compressor stall and surge;   |       |    |    |
| ○ Methods of air-flow control: bleed valves, variable inlet guide vanes, variable stator vanes, rotating stator blades; |       |    |    |
| ○ Compressor ratio.   |       |    |    |
| <b>15.5 Combustion Section</b>  |       |    |    |
| Constructional features and principles of operation.  | 1     | 2  | —  |
| <b>15.6 Turbine Section</b>   | 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.   |       |    |    |
| <b>15.7 Exhaust</b>   | 1     | 2  | —  |
| — Constructional features and principles of operation;  |       |    |    |
| — Convergent, divergent, and variable area nozzles;   |       |    |    |
| — Engine noise reduction;   |       |    |    |
| — Thrust reversers.   | —     | 2  | —  |
| <b>15.8 Bearings and Seals</b>  |       |    |    |
| Constructional features and principles of operation.  | 1     | 2  | —  |
| <b>15.9 Lubricants and Fuels</b>  |       |    |    |
| — Properties and specifications of standard, alternate, and drop-in fuel;   |       |    |    |
| — Properties and specifications of lubricants;  |       |    |    |
| — Fuel additives;   |       |    |    |
| — Safety precautions.   |       |    |    |



|  | Level |    |    |
|--|-------|----|----|
|  | A     | B1 | B2 |
| <b>15.10 Lubrication Systems</b><br>System operation/lay-out and components.   | 1     | 2  | —  |
| <b>15.11 Fuel Systems</b><br>— Operation of engine control and fuel-metering systems, including electronic engine control (full authority digital engine control (FADEC)) and electronic power augmentation;<br>— System layout and components.  | 1     | 2  | —  |
| <b>15.12 Air Systems</b><br>Operation of engine air distribution and anti-ice control systems, including internal cooling, sealing and external air services.  | 1     | 2  | —  |
| <b>15.13 Starting and Ignition Systems</b><br>— Operation of engine start systems and components;<br>— Ignition systems and components;<br>— Maintenance safety requirements.  | 1     | 2  | —  |
| <b>15.14 Engine Indication Systems</b><br>— Exhaust gas temperature / interstage turbine temperature;<br>— Engine thrust indication: engine pressure ratio, engine turbine discharge pressure or jet pipe pressure systems;<br>— Oil pressure and temperature;<br>— Fuel pressure and flow;<br>— Engine speed;<br>— Vibration measurement and indication;<br>— Torque;<br>— Power. | 1     | 2  | —  |
| <b>15.15 Power Augmentation Systems</b><br>— Geared turbofan (GTF);<br>— Variable fan blades;<br>— Open rotor/propfan;   | —     | 1  | —  |

|  | Level  |        |        |
|--|--------|--------|--------|
|  | A      | B1     | B2     |
| — Hybrid turbine-electric concepts and electric power augmentation;<br>— Future trends and developments.   |        |        |        |
| <b>15.16 Turbo-prop Engines</b>  |        |        |        |
| — Gas-coupled/free-turbine and gear-coupled turbines;<br>— Reduction gears;<br>— Integrated engine and propeller controls;<br>— Overspeed safety devices.  | 1      | 2      | —      |
| <b>15.17 Turbo-shaft engines</b>   |        |        |        |
| Arrangements, drive systems, reduction gearing, couplings, control systems.  |        |        |        |
| <b>15.18 Auxiliary Power Units (APUs)</b>  |        |        |        |
| Purpose, operation, protective systems.  | 1      | 2      | —      |
| <b>15.19 Powerplant Installation</b>   |        |        |        |
| 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<br>1 | 2<br>2 | —<br>— |
| <b>15.20 Fire Protection Systems</b>   | 1      | 2      | —      |
| Operation of detection and extinguishing systems   |        |        |        |
| <b>15.21 Engine Monitoring and Ground Operation</b>  | 1      | 3      | —      |
| — Procedures for starting and ground run-up;<br>— Interpretation of engine power output and parameters;<br>— Trend (including oil analysis, vibration and borescope) monitoring;<br>— Inspection of engine and components to criteria, tolerances and data specified by the engine manufacturer;<br>— Compressor washing/cleaning;<br>— Foreign object damage (FOD). |        |        |        |

|   | Level |    |    |
|---|-------|----|----|
|   | A     | B1 | B2 |
| <b>15.22 Engine Storage and Preservation</b><br>Preservation and depreservation for the engine and accessories / systems. | —     | 2  | —  |

**MODULE 16 - PISTON ENGINE**

|   | Level |    |    |
|---|-------|----|----|
|   | A     | B1 | B3 |
| <b>16.1 Fundamentals</b><br>— Mechanical, thermal, and volumetric efficiencies;<br>— Operating principles: 2-stroke, 4-stroke, Otto, diesel, and rotary (Wankel);<br>— Piston displacement and compression ratio;<br>— Engine configuration and firing order. | 1     | 2  | 2  |
| <b>16.2 Engine Performance</b><br>— Power calculation and measurement;<br>— Factors that affect engine power;<br>— Mixtures/leaning, pre-ignition.  | 1     | 2  | 2  |
| <b>16.3 Engine Construction</b><br>— Crank case, crank shaft, cam shafts, sumps;<br>— Accessory gearbox;<br>— Cylinder and piston assemblies;<br>— Connecting rods, inlet and exhaust manifolds;<br>— Valve mechanisms;<br>— Propeller reduction gearboxes.   | 1     | 2  | 2  |
| <b>16.4 Engine Fuel Systems</b><br>16.4.1 Carburetors<br>— Types, construction, and principles of operation;<br>— Icing and heating.  | 1     | 2  | 2  |
| 16.4.2 Fuel injection systems<br>Types, construction and principles of operation.   | 1     | 2  | 2  |

|   | Level |    |    |
|---|-------|----|----|
|   | A     | B1 | B3 |
| <b>16.4.3 Electronic engine control</b><br>— Operation of engine control and fuel-metering systems including electronic engine control (full authority digital engine control (FADEC));<br>— System layout and components.  | 1     | 2  | 2  |
| <b>16.5 Starting and Ignition Systems</b><br>— Starting systems, preheat systems;<br>— Magneto types, construction, and principles of operation;<br>— Ignition harnesses, spark plugs;<br>— Low- and high-tension systems.  | 1     | 2  | 2  |
| <b>16.6 Induction, Exhaust and Cooling Systems</b><br>— Construction and operation of induction systems, including alternate air systems;<br>— Exhaust systems, engine cooling systems<br>— air and liquid.   | 1     | 2  | 2  |
| <b>16.7 Supercharging/Turbocharging</b><br>— Principles and purpose of supercharging and its effects on engine parameters;<br>— Construction and operation of supercharging/turbocharging systems;<br>— System terminology;<br>— Control systems;<br>— System protection. | 1     | 2  | 2  |
| <b>16.8 Lubricants and Fuels</b><br>— Properties and specifications of standard, alternate, and drop-in fuel;<br>— Properties and specifications of lubricants;<br>— Fuel additives;<br>— Safety precautions.   | 1     | 2  | 2  |

|   | Level |    |    |
|---|-------|----|----|
|   | A     | B1 | B3 |
| <b>16.9 Lubrication Systems</b><br>System operation/lay-out and components.   | 1     | 2  | 2  |
| <b>16.10 Engine Indication Systems</b><br>— Engine speed;<br>— Cylinder head temperature;<br>— Coolant temperature;<br>— Oil pressure and temperature;<br>— Exhaust gas temperature;<br>— Fuel pressure and flow;<br>— Manifold pressure.                                     | 1     | 2  | 2  |
| <b>16.11 Powerplant Installation</b><br>Configuration of firewalls, cowlings, acoustic panels, engine mounts, antivibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.                                      | 1     | 2  | 2  |
| <b>16.12 Engine Monitoring and Ground Operation</b><br>— Procedures for starting and ground run-up;<br>— Interpretation of engine power output and parameters;<br>— Inspection of engine and components: criteria, tolerances, and data specified by the engine manufacturer. | 1     | 2  | 2  |
| <b>16.13 Engine Storage and Preservation</b><br>Preservation and depreservation for the engine and accessories / systems.   | —     | 2  | 2  |
| <b>16.14 Alternate piston-engine constructions</b><br>Hybrid piston–electric concepts and electric power augmentation.  | 1     | 1  | 1  |

**MODULE 17 - PROPELLER**

|  | Level |    |    |
|--|-------|----|----|
|  | A     | B1 | B3 |
| <b>17.1 Fundamentals</b><br>— Blade element theory;<br>— High/low blade angle, reverse angle, angle of attack, rotational speed;<br>— Propeller slip;<br>— Aerodynamic, centrifugal, and thrust forces;<br>— Torque;<br>— Relative airflow on blade angle of attack;<br>— Vibration and resonance.                         | 1     | 2  | 2  |
| <b>17.2 Propeller Construction</b><br>— Construction methods and materials used in wooden, composite and metal propellers;<br>— Blade station, blade face, blade shank, blade back / thrust face and hub assembly;<br>— Fixed pitch, controllable pitch, constant speeding propeller;<br>— Propeller/spinner installation. | 1     | 2  | 2  |
| <b>17.3 Propeller Pitch Control</b><br>— Speed control and pitch change methods<br>— mechanical and electrical/electronic;<br>— Feathering and reverse pitch;<br>— Overspeed protection.   | 1     | 2  | 2  |
| <b>17.4 Propeller Synchronising</b><br>Synchronising and synchrophasing equipment.   | —     | 2  | 2  |
| <b>17.5 Propeller Ice Protection</b><br>Fluid and electrical de-icing equipment.   | 1     | 2  | 2  |

|   | Level |    |    |
|---|-------|----|----|
|   | A     | B1 | B3 |
| <b>17.6 Propeller Maintenance</b><br>— Static and dynamic balancing;<br>— Blade tracking;<br>— Assessment of blade damage, erosion, corrosion, impact damage, delamination;<br>— Propeller treatment/repair schemes;<br>— Propeller engine running. | 1     | 3  | 3  |
| <b>17.7 Propeller Storage and Preservation</b><br>Propeller preservation and depreservation   | 1     | 2  | 2  |

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## Appendix II

### Basic Examination Standard

#### 1. Standardisation Basis For Examinations

- 1.1. All basic examinations must be carried out using the multiple-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 multiple-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 7, 9 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 multiple-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 multiple-choice part only or the essay part only is failed, then it is only necessary to retake the multiple-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



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training organisation approved in accordance with 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 one-year waiting period between sets.

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

**AMC 1 Appendix II—Basic examination standard**

The tables below show the acceptable number of questions for the submodules. Justified deviations from these values are also acceptable, provided the sum of the questions complies with the total number of questions for a given module.

**MODULE 1 — MATHEMATICS**

| <b>MODULE 1 — MATHEMATICS</b>                    | <b>Number of Questions</b> |                     |
|--|----------------------------|---------------------|
|  | <b>A</b>                   | <b>B1 B2 B2L B3</b> |
| <b>Total number of questions for the module:</b> | <b>16</b>                  | <b>32</b>           |
| 1.1 Arithmetic                                   | 6                          | 6                   |
| 1.2 Algebra:                                     | 5                          | 4                   |
| (a) Simple algebraic expressions;                | —                          | 12                  |
| (b) Equations.                                   | —                          | —                   |
| 1.3 Geometry:                                    | —                          | 3                   |
| (a) Simple geometrical constructions;            | 5                          | 4                   |
| (b) Graphical representation;                    | —                          | 3                   |
| (c) Trigonometry.                                | —                          | —                   |

**MODULE 2 — PHYSICS**

| <b>MODULE 2 — PHYSICS</b>  | <b>Number of Questions</b> |                  |
|--|----------------------------|------------------|
|  | <b>A B3</b>                | <b>B1 B2 B2L</b> |
| <b>Total number of questions for the module:</b>                               | <b>32</b>                  | <b>52</b>        |
| 2.1 Matter   | 4                          | 5                |
| 2.2 Mechanics  | —                          | —                |
| 2.2.1 Statics  | 6                          | 7                |
| 2.2.2 Kinetics   | 6                          | 7                |
| 2.2.3 Dynamics:  | 4                          | 5                |
| (a) Mass, force, and energy;   | —                          | —                |
| (b) Momentum and conservation of momentum.                                     | 4                          | 4                |
| 2.2.4 Fluid dynamics:  | —                          | —                |
| (a) Gravity and density;   | 2                          | 2                |
| (b) Viscosity; compressibility on fluids; static, dynamic, and total pressure. | 2                          | 3                |

| MODULE 2 — PHYSICS        | Number of Questions |           |
|---------------------------|---------------------|-----------|
|                           | A B3                | B1 B2 B2L |
| 2.3 Thermodynamics:       |                     |           |
| (a) Temperature;          | 2                   | 2         |
| (b) Heat.                 | 2                   | 8         |
| 2.4 Optics (light)        | —                   | 5         |
| 2.5 Wave motion and sound | —                   | 4         |

**MODULE 3 — ELECTRICS FUNDAMENTALS**

| MODULE 3 — ELECTRICS FUNDAMENTALS                             | Number of Questions |           |           |
|---|---------------------|-----------|-----------|
|   | A                   | B1 B2 B2L | B3        |
| <b>Total number of questions for the module:</b>              | <b>20</b>           | <b>24</b> | <b>52</b> |
| 3.1 Electron theory   | 2                   | 2         | 2         |
| 3.2 Static electricity and conduction                         | 3                   | 2         | 3         |
| 3.3 Electrical terminology                                    | 3                   | 2         | 2         |
| 3.4 Generation of electricity                                 | 3                   | 2         | 2         |
| 3.5 Sources of DC electricity                                 | 3                   | 3         | 3         |
| 3.6 DC circuits   | 1                   | 1         | 2         |
| 3.7 Resistance/resistor:                                      |                     |           |           |
| (a) Resistance;   | —                   | 1         | 3         |
| (b) Resistors.  | —                   | —         | 2         |
| 3.8 Power   | —                   | 1         | 3         |
| 3.9 Capacitance/capacitor                                     | —                   | 1         | 4         |
| 3.10 Magnetism:   |                     |           |           |
| (a) Theory of magnetism;                                      | —                   | 1         | 3         |
| (b) Magnetomotive force.                                      | —                   | 1         | 1         |
| 3.11 Inductance/inductor                                      | —                   | 1         | 4         |
| 3.12 DC motor/generator theory                                | —                   | 1         | 3         |
| 3.13 AC theory  | 5                   | 1         | 3         |
| 3.14 Resistive (R), capacitive (C) and inductive (L) circuits | —                   | 1         | 3         |
| 3.15 Transformers   | —                   | 1         | 3         |

| <b>MODULE 3 — ELECTRICS FUNDAMENTALS</b> | <b>Number of Questions</b> |                  |           |   |
|--|----------------------------|------------------|-----------|---|
|  | <b>A</b>                   | <b>B1 B2 B2L</b> | <b>B3</b> |   |
| 3.16 Filters                             | —                          | —                |           | 1 |
| 3.17 AC generators                       | —                          | 1                |           | 3 |
| 3.18 AC motors                           | —                          | 1                |           | 2 |

**MODULE 4 — ELECTRONICS FUNDAMENTALS**

| <b>MODULE 4 — ELECTRONICS FUNDAMENTALS</b>       | <b>Number of Questions</b> |              |               |  |
|--|----------------------------|--------------|---------------|--|
|  | <b>A</b>                   | <b>B1 B3</b> | <b>B2 B2L</b> |  |
| <b>Total number of questions for the module:</b> | —                          | <b>20</b>    | <b>40</b>     |  |
| 4.1 Semiconductors                               | —                          | 8            | 8             |  |
| 4.1.1 Diodes:                                    |                            |              |               |  |
| (a) Description and characteristics;             | —                          | —            | 7             |  |
| (b) Operation and function.                      |                            |              |               |  |
| 4.1.2 Transistors:                               | —                          | 4            | 4             |  |
| (a) Description and characteristics;             | —                          | —            | 7             |  |
| (b) Construction and operation.                  |                            |              |               |  |
| 4.1.3 Integrated circuits:                       | —                          | 3            | 2             |  |
| (a) Basic description and operation;             | —                          | —            | 4             |  |
| (b) Description and operation.                   |                            |              |               |  |
| 4.2 Printed circuit boards                       | —                          | 2            | 3             |  |
| 4.3 Servomechanisms:                             | —                          | 3            | 2             |  |
| (a) Principles;                                  | —                          | —            | 3             |  |
| (b) Construction, operation, and use.            |                            |              |               |  |

**MODULE 5 — DIGITAL TECHNIQUES / ELECTRONIC INSTRUMENT SYSTEMS**

| <b>MODULE 5 — DIGITAL TECHNIQUES / ELECTRONIC INSTRUMENT SYSTEMS</b> | <b>Number of Questions</b> |           |           |               |
|--|----------------------------|-----------|-----------|---------------|
|  | <b>A</b>                   | <b>B3</b> | <b>B1</b> | <b>B2 B2L</b> |
| <b>Total number of questions for the module:</b>                     | <b>20</b>                  | <b>20</b> | <b>40</b> | <b>72</b>     |
| 5.1 Electronic instrument systems                                    | 4                          | 4         | 4         | 4             |
| 5.2 Numbering systems  | —                          | —         | 3         | 5             |
| 5.3 Data conversion  | —                          | —         | 3         | 4             |

| MODULE 5 — DIGITAL TECHNIQUES /<br>ELECTRONIC INSTRUMENT SYSTEMS | Number of Questions |    |    |        |
|--|---------------------|----|----|--------|
|  | A                   | B3 | B1 | B2 B2L |
| 5.4 Data buses   | —                   | —  | 3  | 5      |
| 5.5 Logic circuits:  | —                   | —  | 3  | 4      |
| (a) Identification and applications;                             | —                   | —  | —  | 4      |
| (b) Interpretation of logic diagrams.                            | —                   | —  | —  | —      |
| 5.6 Basic computer structure:                                    | 6                   | 2  | 4  | 2      |
| (a) Computer terminology and technology;                         | —                   | —  | —  | 6      |
| (b) Computer operation.  | —                   | —  | —  | —      |
| 5.7 Microprocessors  | —                   | —  | —  | 4      |
| 5.8 Integrated circuits  | —                   | —  | —  | 5      |
| 5.9 Multiplexing   | —                   | —  | —  | 4      |
| 5.10 Fibre optics  | —                   | —  | 3  | 3      |
| 5.11 Electronic displays   | 2                   | 2  | 2  | 2      |
| 5.12 Electrostatic sensitive devices                             | 6                   | 6  | 4  | 5      |
| 5.13 Software management control                                 | —                   | 1  | 3  | 3      |
| 5.14 Electromagnetic environment                                 | —                   | 1  | 3  | 4      |
| 5.15 Typical electronic/digital aircraft systems                 | 2                   | 4  | 5  | 6      |

**MODULE 6 — MATERIALS AND HARDWARE**

| MODULE 6 — MATERIALS AND<br>HARDWARE             | Number of Questions |           |           |
|--|---------------------|-----------|-----------|
|  | A                   | B1 B3     | B2 B2L    |
| <b>Total number of questions for the module:</b> | <b>52</b>           | <b>80</b> | <b>60</b> |
| 6.1 Aircraft materials — ferrous:                | 3                   | 3         | 3         |
| (a) Alloy steels used in aircraft;               | —                   | 2         | 1         |
| (b) Testing of ferrous materials;                | —                   | 2         | 1         |
| (c) Repair and inspection procedures.            | —                   | —         | —         |
| 6.2 Aircraft materials — non-ferrous:            | 3                   | 4         | 3         |
| (a) Characteristics;                             | —                   | 3         | 2         |
| (b) Testing of non-ferrous materials;            | —                   | 2         | 1         |
| (c) Repair and inspection procedures.            | —                   | —         | —         |

| MODULE 6 — MATERIALS AND<br>HARDWARE                         | Number of Questions |       |        |
|--|---------------------|-------|--------|
|  | A                   | B1 B3 | B2 B2L |
| 6.3 Aircraft materials — composite and non-metallic          | 2                   | 4     | 3      |
| 6.3.1 Composite and non-metallic other than wood and fabric: | 2                   | 4     | —      |
| (a) Characteristics;   | —                   | 2     | 2      |
| (b) Detection of defects;                                    |                     |       |        |
| (c) Repairs and inspection procedures.                       |                     |       |        |
| 6.4 Corrosion:   | 3                   | 3     | 3      |
| (a) Chemical fundamentals;                                   | 4                   | 5     | 3      |
| (b) Types of corrosion.                                      |                     |       |        |
| 6.5 Fasteners  | 4                   | 4     | 3      |
| 6.5.1 Screw threads  |                     |       |        |
| 6.5.2 Bolts, studs, and screws                               |                     |       |        |
| 6.5.3 Locking devices  |                     |       |        |
| 6.5.4 Aircraft rivets  |                     |       |        |
| 6.6 Pipes and unions:  | 1                   | 1     | 1      |
| (a) Identification;  | 2                   | 2     | 2      |
| (b) Standard unions.   |                     |       |        |
| 6.7 Springs  | —                   | 1     | 1      |
| 6.8 Bearings   | 2                   | 4     | 3      |
| 6.9 Transmissions  | 3                   | 4     | 4      |
| 6.10 Control cables  | 5                   | 5     | 4      |
| 6.11 Electrical cables and connectors                        | 5                   | 6     | 11     |

**MODULE 7 — MAINTENANCE PRACTICES**

| MODULE 7 — MAINTENANCE PRACTICES                 | Number of Questions |           |           |
|--|---------------------|-----------|-----------|
|  | A                   | B1 B3     | B2 B2L    |
| <b>Total number of questions for the module:</b> | <b>76</b>           | <b>80</b> | <b>60</b> |
| 7.1 Safety precautions — aircraft and workshop   | 4                   | 4         | 4         |
| 7.2 Workshop practices                           | 4                   | 4         | 4         |

| MODULE 7 — MAINTENANCE PRACTICES                               | Number of Questions |       |        |
|--|---------------------|-------|--------|
|  | A                   | B1 B3 | B2 B2L |
| 7.3 Tools  | 6                   | 6     | 6      |
| 7.4 (Reserved)   | —                   | —     | —      |
| 7.5 Engineering drawings, diagrams, and standards              | 6                   | 6     | 6      |
| 7.6 Fits and clearances  | 5                   | 5     | 5      |
| 7.7 Electrical wiring interconnection system (EWIS)            | 4                   | 4     | 8      |
| 7.8 Riveting   | 4                   | 3     | —      |
| 7.9 Pipes and hoses  | 4                   | 3     | —      |
| 7.10 Springs   | 1                   | 1     | —      |
| 7.11 Bearings  | 4                   | 3     | —      |
| 7.12 Transmissions   | 3                   | 3     | —      |
| 7.13 Control cables  | 4                   | 3     | —      |
| 7.14 Material handling   | —                   | 2     | —      |
| 7.14.1 Sheet metal   | —                   | —     | —      |
| 7.14.2 Composite and non-metallic                              | —                   | 2     | —      |
| 7.14.3 Additive manufacturing                                  | 2                   | 4     | 2      |
| 7.15 (Reserved)  | —                   | —     | —      |
| 7.16 Aircraft weight and balance:                              | —                   | 2     | 2      |
| (a) Centre-of-gravity calculation;                             | —                   | 1     | —      |
| (b) Aircraft weighing.   | —                   | —     | —      |
| 7.17 Aircraft handling and storage                             | 7                   | 5     | 6      |
| 7.18 Disassembly, inspection, repair, and assembly techniques: | 2                   | 2     | 2      |
| (a) Types of defects and visual inspection techniques;         | —                   | 2     | —      |
| (b) General repair methods — structural repair manual;         | —                   | 1     | 1      |
| (c) Non-destructive inspection techniques;                     | 2                   | 1     | 1      |
| (d) Disassembly and reassembly techniques;                     | —                   | 1     | 1      |
| (e) Troubleshooting techniques.                                | —                   | —     | —      |

| <b>MODULE 7 — MAINTENANCE PRACTICES</b>  | <b>Number of Questions</b> |              |               |
|--|----------------------------|--------------|---------------|
|  | <b>A</b>                   | <b>B1 B3</b> | <b>B2 B2L</b> |
| 7.19 Abnormal events:  | 2                          | 1            | 2             |
| (a) Inspections following lightning strikes and HIRF penetration;                              | 2                          | 1            | —             |
| (b) Inspections following abnormal events such as heavy landing and flight through turbulence. |                            |              |               |
| 7.20 Maintenance procedures  | 6                          | 6            | 6             |
| 7.21 Documentation and communication   | 4                          | 4            | 4             |

**MODULE 8 — BASIC AERODYNAMICS**

| <b>MODULE 8 — BASIC AERODYNAMICS</b>  | <b>Number of Questions</b> |                  |
|---|----------------------------|------------------|
|   | <b>A B3</b>                | <b>B1 B2 B2L</b> |
| <b>Total number of questions for the module:</b>  | <b>24</b>                  | <b>24</b>        |
| 8.1 Physics of the atmosphere<br>International Standard Atmosphere (ISA),<br>application to aerodynamics. | 2                          | 2                |
| 8.2 Aerodynamics  | 9                          | 9                |
| 8.3 Theory of flight  | 7                          | 7                |
| 8.4 High-speed airflow  | 4                          | 4                |
| 8.5 Flight stability and dynamics   | 2                          | 2                |

**MODULE 9 — HUMAN FACTORS**

| <b>MODULE 9 — HUMAN FACTORS</b>                  | <b>Number of Questions</b> |
|--|----------------------------|
|  | <b>ALL</b>                 |
| <b>Total number of questions for the module:</b> | <b>28</b>                  |
| 9.1 General                                      | 3                          |
| 9.2 Human performance and limitations            | 3                          |
| 9.3 Social psychology                            | 2                          |
| 9.4 Factors that affect human performance        | 3                          |
| 9.5 Physical environment                         | 2                          |
| 9.6 Tasks  | 2                          |



| <b>MODULE 9 — HUMAN FACTORS</b>                  | <b>Number of Questions</b> |
|--|----------------------------|
|  | <b>ALL</b>                 |
| <b>Total number of questions for the module:</b> | <b>28</b>                  |
| 9.7 Communication                                | 3                          |
| 9.8 Human error                                  | 4                          |
| 9.9 Safety management                            | 2                          |
| 9.10 The ‘Dirty Dozen’ and risk-mitigation       | 4                          |

**MODULE 10 — AVIATION LEGISLATION**

| <b>MODULE 10 — AVIATION LEGISLATION</b>   | <b>Number of Questions</b> |           |           |           |
|---|----------------------------|-----------|-----------|-----------|
|   | <b>A</b>                   | <b>B1</b> | <b>B2</b> | <b>B3</b> |
| <b>Total number of questions for the module:</b>  | <b>32</b>                  | <b>44</b> |           |           |
| 10.1 Regulatory framework   | 5                          | 5         |           |           |
| 10.2 Certifying staff — maintenance   | 7                          | 7         |           |           |
| 10.3 Approved maintenance organisations   | 6                          | 6         |           |           |
| 10.4 Independent certifying staff   | —                          | 4         |           |           |
| 10.5 Air operations   | 4                          | 4         |           |           |
| 10.6 Certification of aircraft, parts, and appliances   | 1                          | 4         |           |           |
| 10.7 Continuing airworthiness   | 6                          | 7         |           |           |
| 10.8 Oversight principles in continuing airworthiness   | 2                          | 3         |           |           |
| 10.9 Maintenance and certification beyond the current EU regulations (if not superseded by EU requirements) | —                          | 3         |           |           |
| 10.10 Cybersecurity in aviation maintenance   | 1                          | 1         |           |           |

**MODULE 11—AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS**

| <b>MODULE 11—AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS</b> | <b>Number of Questions</b> |           |             |             |           |
|---|----------------------------|-----------|-------------|-------------|-----------|
|   | <b>A1</b>                  | <b>A2</b> | <b>B1.1</b> | <b>B1.2</b> | <b>B3</b> |
| <b>Total number of questions for the module:</b>                | <b>108</b>                 | <b>72</b> | <b>140</b>  | <b>100</b>  | <b>60</b> |
| 11.1 Theory of flight:  | 2                          | 2         | 2           | 2           | 1         |
| (a) Aeroplane aerodynamics and flight controls;                 | 2                          | 2         | 2           | 2           | 1         |
| (b) Aeroplane, other aerodynamic devices.                       |                            |           |             |             |           |

| MODULE 11—AEROPLANE<br>AERODYNAMICS, STRUCTURES AND<br>SYSTEMS | Number of Questions |    |      |      |    |
|--|---------------------|----|------|------|----|
|  | A1                  | A2 | B1.1 | B1.2 | B3 |
| 11.2 Airframe structures (ATA 51):                             | 3                   | 3  | 4    | 3    | 2  |
| (a) General concepts;  | 3                   | 3  | 3    | 3    | 1  |
| (b) Airworthiness requirements for structural strength;        | 1                   | 1  | 3    | 2    | 1  |
| (c) Construction methods.                                      |                     |    |      |      |    |
| 11.3 Airframe structures — aeroplanes                          | 1                   | 1  | 2    | 2    | 2  |
| 11.3.1 Fuselage, doors, windows (ATA 52/53/56):                | 1                   | 1  | 1    | 1    | 1  |
| (a) Construction principles;                                   | 1                   | 1  | 1    | 1    | —  |
| (b) Airborne towing devices;                                   |                     |    |      |      |    |
| (c) Doors.   |                     |    |      |      |    |
| 11.3.2 Wings (ATA 57)  | 2                   | 2  | 3    | 3    | 2  |
| 11.3.3 Stabilisers (ATA 55)                                    | 1                   | 1  | 2    | 1    | 1  |
| 11.3.4 Flight control surfaces (ATA 55/57)                     | 1                   | 1  | 2    | 2    | 1  |
| 11.3.5 Nacelles/pylons (ATA 54)                                | 1                   | 1  | 2    | 1    | 1  |
| 11.4 Air conditioning and cabin pressurisation (ATA 21):       | 2                   | 2  | 3    | 1    | —  |
| (a) Pressurisation;  | 3                   | —  | 3    | —    | —  |
| (b) Air supply;  | 3                   | —  | 3    | —    | —  |
| (c) Air conditioning;  | 2                   | 1  | 2    | 2    | —  |
| (d) Safety and warning devices;                                | —                   | 1  | —    | 2    | 1  |
| (e) Heating and ventilation system.                            |                     |    |      |      |    |
| 11.5 Instruments / avionics systems                            | 2                   | 2  | 4    | 3    | 3  |
| 11.5.1 Instrument systems (ATA 31)                             |                     |    |      |      |    |
| 11.5.2 Avionics systems  | 3                   | 2  | 5    | 4    | 4  |
| Fundamentals of system layouts and operation of:               |                     |    |      |      |    |
| — Autoflight (ATA 22);   |                     |    |      |      |    |
| — Communications (ATA 23);                                     |                     |    |      |      |    |
| — Navigation systems (ATA 34).                                 |                     |    |      |      |    |

| MODULE 11—AEROPLANE<br>AERODYNAMICS, STRUCTURES AND<br>SYSTEMS          | Number of Questions |    |      |      |    |
|---|---------------------|----|------|------|----|
|   | A1                  | A2 | B1.1 | B1.2 | B3 |
| 11.6 Electrical power (ATA 24)  | 4                   | 3  | 5    | 5    | 4  |
| 11.7 Equipment and furnishings (ATA 25)                                 | 4                   | 2  | 4    | 3    | 2  |
| (a) Emergency equipment;  |                     |    |      |      |    |
| (b) Cabin and cargo layout.   | 3                   | 3  | 3    | 3    | —  |
| 11.8 Fire protection (ATA 26)   | 3                   | 2  | 4    | 3    | —  |
| (a) Fire and smoke detection system<br>and fire- extinguishing systems; |                     |    |      |      |    |
| (b) Portable fire extinguisher.   | 1                   | 1  | 1    | 1    | 1  |
| 11.9 Flight controls (ATA 27)   | 3                   | 2  | 4    | 4    | 2  |
| (a) Primary and secondary flight<br>controls;                           | 3                   | —  | 3    | 3    | 2  |
| (b) Actuation and protection;   | 3                   | —  | 3    | 2    | 1  |
| (c) System operation;   | 1                   | 1  | 3    | 2    | 2  |
| (d) Balancing and rigging.  |                     |    |      |      |    |
| 11.10 Fuel systems (ATA 28/47)  | 2                   | 2  | 3    | 3    | 2  |
| (a) Systems layout;   | 2                   | 2  | 2    | 2    | 1  |
| (b) Fuel handling;  | 1                   | 1  | 2    | 2    | 1  |
| (c) Indications and warnings;   | 1                   | —  | 1    | —    | —  |
| (d) Special systems;  | 2                   | —  | 2    | —    | —  |
| (e) Balancing.  |                     |    |      |      |    |
| 11.11 Hydraulic power (ATA 29)  | 1                   | 1  | 3    | 3    | 2  |
| (a) System description;   | 1                   | 1  | 3    | 1    | 1  |
| (b) System operation (1);   | 2                   | —  | 2    | —    | —  |
| (c) System operation (2).   |                     |    |      |      |    |
| 11.12 Ice and rain protection (ATA 30)                                  | 1                   | 1  | 2    | 2    | 1  |
| (a) Principles;   | 1                   | 1  | 2    | 2    | 1  |
| (b) De-icing;   | 1                   | —  | 2    | —    | —  |
| (c) Anti-icing;   | 1                   | 1  | 2    | 2    | 1  |
| (d) Wipers;   | 2                   | —  | 2    | —    | —  |
| (e) Rain-repellent systems.   |                     |    |      |      |    |

| <b>MODULE 11—AEROPLANE<br/>AERODYNAMICS, STRUCTURES AND<br/>SYSTEMS</b> | <b>Number of Questions</b> |           |             |             |           |
|---|----------------------------|-----------|-------------|-------------|-----------|
|   | <b>A1</b>                  | <b>A2</b> | <b>B1.1</b> | <b>B1.2</b> | <b>B3</b> |
| 11.13 Landing gear (ATA 32)   | 3                          | 3         | 4           | 3           | 1         |
| (a) Description;  | 3                          | 3         | 4           | 2           | 1         |
| (b) System operation;   | 1                          | —         | 1           | —           | —         |
| (c) Air–ground sensing;   | 1                          | 1         | 1           | 1           | 1         |
| (d) Tail protection.  |                            |           |             |             |           |
| 11.14 Lights (ATA 33)   | 2                          | 2         | 3           | 3           | 2         |
| 11.15 Oxygen (ATA 35)   | 3                          | 3         | 4           | 4           | 3         |
| 11.16 Pneumatic/vacuum (ATA 36)   | 3                          | 3         | 3           | 3           | 2         |
| (a) Systems;  |                            |           |             |             |           |
| (b) Pumps.  | 3                          | 3         | 3           | 3           | 2         |
| 11.17 Water/waste (ATA 38)  | 2                          | 2         | 2           | 2           | 1         |
| (a) Systems;  |                            |           |             |             |           |
| (b) Corrosion.  | 1                          | 1         | 1           | 1           | 1         |
| 11.18 Onboard maintenance systems<br>(ATA 45)                           | 3                          | —         | 3           | —           | —         |
| 11.19 Integrated modular avionics (IMA)<br>(ATA 42)                     | 1                          | —         | 1           | —           | —         |
| (a) Overall system description and theory;                              |                            |           |             |             |           |
| (b) Typical system layouts.   | 1                          | —         | 1           | —           | —         |
| 11.20 Cabin systems (ATA 44)  | 2                          | —         | 2           | —           | —         |
| 11.21 Information systems (ATA 46)                                      | 2                          | —         | 2           | —           | —         |

**MODULE 12 — HELICOPTER AERODYNAMICS, STRUCTURES AND  
SYSTEMS**

| <b>MODULE 12 — HELICOPTER<br/>AERODYNAMICS, STRUCTURES AND<br/>SYSTEMS</b> | <b>Number of<br/>Questions</b> |                  |
|--|--------------------------------|------------------|
|  | <b>A3 A4</b>                   | <b>B1.3 B1.4</b> |
| <b>Total number of questions for the module:</b>                           | <b>100</b>                     | <b>128</b>       |
| 12.1 Theory of flight — rotary wing aerodynamics                           | 6                              | 9                |
| 12.2 Flight control systems (ATA 67)                                       | 9                              | 9                |

| MODULE 12 — HELICOPTER<br>AERODYNAMICS, STRUCTURES AND<br>SYSTEMS  | Number of<br>Questions |           |
|--|------------------------|-----------|
|  | A3 A4                  | B1.3 B1.4 |
| 12.3 Blade tracking and vibration analysis (ATA 18)  | 6                      | 9         |
| 12.4 Transmission  | 3                      | 6         |
| 12.5 Airframe structures (ATA 51)  | 5                      | 6         |
| (a) General concept;   |                        |           |
| (b) Construction methods of the principal<br>elements.   | 5                      | 7         |
| 12.6 Air conditioning (ATA 21)   | —                      | —         |
| 12.6.1 Air supply  | 1                      | 2         |
| 12.6.2 Air conditioning  | 3                      | 5         |
| 12.7 Instruments / avionics systems  | 6                      | 9         |
| 12.7.1 Instrument systems (ATA 31)   |                        |           |
| 12.7.2 Avionics systems  | 5                      | 7         |
| Fundamentals of system layouts and operation of:   |                        |           |
| — Autoflight (ATA 22);   |                        |           |
| — Communications (ATA 23);   |                        |           |
| — Navigation systems (ATA 34).   |                        |           |
| 12.8 Electrical power (ATA 24)   | 8                      | 10        |
| 12.9 Equipment and furnishings (ATA 25)  | 2                      | 3         |
| (a) Emergency equipment:<br>Seats, harnesses, and belts; Lifting<br>systems.   |                        |           |
| (b) Emergency flotation systems:<br>Cabin layout, cargo retention; Equipment<br>layout; Cabin furnishing installation. | 3                      | 3         |
| 12.10 Fire protection (ATA 26)   | 3                      | 4         |
| (a) Fire and smoke detection systems and fire-<br>extinguishing systems;   |                        |           |
| (b) Portable fire extinguishers.   | 1                      | 1         |
| 12.11 Fuel systems (ATA 28)  | 7                      | 8         |

| <b>MODULE 12 — HELICOPTER<br/>AERODYNAMICS, STRUCTURES AND<br/>SYSTEMS</b> | <b>Number of<br/>Questions</b> |                  |
|--|--------------------------------|------------------|
|  | <b>A3 A4</b>                   | <b>B1.3 B1.4</b> |
| 12.12 Hydraulic power (ATA 29)   | 8                              | 8                |
| 12.13 Ice and rain protection (ATA 30)                                     | 4                              | 4                |
| 12.14 Landing gear (ATA 32)  | 3                              | 4                |
| (a) System description and operation;                                      |                                |                  |
| (b) Sensors.   | 3                              | 3                |
| 12.15 Lights (ATA 33)  | 3                              | 4                |
| 12.16 (Reserved)   |                                |                  |
| 12.17 Integrated modular avionics (IMA) (ATA 42)                           | 1                              | 1                |
| (a) Overall system description and theory;                                 |                                |                  |
| (b) Typical system layouts.  | 1                              | 1                |
| 12.18 Onboard maintenance systems (ATA 45)                                 |                                |                  |
| Central maintenance computers;   |                                |                  |
| Data-loading system;   | 2                              | 3                |
| Electronic library system.   |                                |                  |
| 12.19 Information systems (ATA 46)   | 2                              | 2                |

**MODULE 13 — AIRCRAFT AERODYNAMICS, STRUCTURES AND  
SYSTEMS**

| <b>MODULE 13—AIRCRAFT<br/>AERODYNAMICS,<br/>STRUCTURES AND<br/>SYSTEMS</b> | <b>Number of Questions</b> |                      |                    |                     |                    |                     |                    |
|--|----------------------------|----------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
|  | <b>B2</b>                  | <b>B2L<br/>Basic</b> | <b>B2L<br/>C/N</b> | <b>B2L<br/>Ins.</b> | <b>B2L<br/>A/F</b> | <b>B2L<br/>Sur.</b> | <b>B2L<br/>A/S</b> |
| <b>Total number of questions for<br/>the module:</b>                       | <b>188</b>                 | <b>32</b>            | <b>24</b>          | <b>20</b>           | <b>28</b>          | <b>20</b>           | <b>50</b>          |
| 13.1 Theory of flight  | 3                          | 3                    | —                  | —                   | —                  | —                   | —                  |
| (a) Aeroplane aerodynamics<br>and flight controls;                         |                            |                      |                    |                     |                    |                     |                    |
| (b) Rotary wing aerodynamics.  | 1                          | 1                    | —                  | —                   | —                  | —                   | —                  |

| <b>MODULE 13—AIRCRAFT<br/>AERODYNAMICS,<br/>STRUCTURES AND<br/>SYSTEMS</b> | <b>Number of Questions</b> |                      |                    |                     |                    |                     |                    |
|--|----------------------------|----------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
|  | <b>B2</b>                  | <b>B2L<br/>Basic</b> | <b>B2L<br/>C/N</b> | <b>B2L<br/>Ins.</b> | <b>B2L<br/>A/F</b> | <b>B2L<br/>Sur.</b> | <b>B2L<br/>A/S</b> |
| 13.2 Structures — general concepts (ATA 51)                                | 4                          | 4                    | —                  | —                   | —                  | —                   | —                  |
| (a) General concepts;  |                            |                      |                    |                     |                    |                     |                    |
| (b) Fundamentals of structural systems.                                    | 4                          | 4                    | —                  | —                   | —                  | —                   | —                  |
| 13.3 Autoflight (ATA 22)   | 12                         | —                    | —                  | —                   | 8                  | —                   | —                  |
| (a) Fundamentals of automatic flight control;                              |                            |                      |                    |                     |                    |                     |                    |
| (b) Autothrottle systems and automatic landing systems.                    | 8                          | —                    | —                  | —                   | 8                  | —                   | —                  |
| 13.4 Communication/navigation (ATA 23/34)                                  | 24                         | —                    | 24                 | —                   | —                  | —                   | —                  |
| (a) Fundamentals of communication and navigation systems;                  |                            |                      |                    |                     |                    |                     |                    |
| (b) Fundamentals of aircraft surveillance systems.                         | 3                          | —                    | —                  | —                   | —                  | 20                  | —                  |
| 13.5 Electrical power (ATA 24)   | 13                         | 13                   | —                  | —                   | —                  | —                   | —                  |
| 13.6 Equipment and furnishings (ATA 25)                                    | 5                          | —                    | —                  | —                   | —                  | —                   | —                  |
| 13.7 Flight controls   | 4                          | —                    | —                  | —                   | 3                  | —                   | —                  |
| (a) Primary and secondary flight controls (ATA 27);                        |                            |                      |                    |                     |                    |                     |                    |
| (b) Actuation and protection;  | 4                          | —                    | —                  | —                   | 3                  | —                   | —                  |
| (c) System operation;  |                            |                      |                    |                     |                    |                     |                    |
| (d) Rotorcraft flight controls (ATA 67).                                   | 2                          | —                    | —                  | —                   | 3                  | —                   | —                  |
|  | 2                          | —                    | —                  | —                   | 3                  | —                   | —                  |
| 13.8 Instruments (ATA 31)  | 20                         | —                    | —                  | 20                  | —                  | —                   | —                  |
| 13.9 Lights (ATA 33)   | 7                          | 7                    | —                  | —                   | —                  | —                   | —                  |
| 13.10 Onboard maintenance systems (ATA 45)                                 | 5                          | —                    | —                  | —                   | —                  | —                   | —                  |

| <b>MODULE 13—AIRCRAFT<br/>AERODYNAMICS,<br/>STRUCTURES AND<br/>SYSTEMS</b> | <b>Number of Questions</b> |                      |                    |                     |                    |                     |                    |
|--|----------------------------|----------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
|  | <b>B2</b>                  | <b>B2L<br/>Basic</b> | <b>B2L<br/>C/N</b> | <b>B2L<br/>Ins.</b> | <b>B2L<br/>A/F</b> | <b>B2L<br/>Sur.</b> | <b>B2L<br/>A/S</b> |
| 13.11 Air conditioning and cabin pressurisation (ATA 21)                   | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (a) Pressurisation;  | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (b) Air supply;  | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (c) Air conditioning;  | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (d) Safety and warning devices.  | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| 13.12 Fire protection (ATA 26)   | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (a) Fire and smoke detection system and fire-extinguishing systems;        | 1                          | —                    | —                  | —                   | —                  | —                   | 1                  |
| (b) Portable fire extinguisher.  | 1                          | —                    | —                  | —                   | —                  | —                   | 1                  |
| 13.13 Fuel systems (ATA 28, ATA 47)  | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (a) System layout;   | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (b) Fuel handling;   | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (c) Indications and warnings;  | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (d) Special systems;   | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (e) Balancing.   | 1                          | —                    | —                  | —                   | —                  | —                   | 1                  |
| 13.14 Hydraulic power (ATA 29)   | 1                          | —                    | —                  | —                   | —                  | —                   | 1                  |
| (a) System layout;   | 5                          | —                    | —                  | —                   | —                  | —                   | 4                  |
| (b) System operation (1);  | 5                          | —                    | —                  | —                   | —                  | —                   | 4                  |
| (c) System operation (2).  | 5                          | —                    | —                  | —                   | —                  | —                   | 4                  |
| 13.15 Ice and rain protection (ATA 30)                                     | 1                          | —                    | —                  | —                   | —                  | —                   | 1                  |
| (a) Principles;  | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| (b) De-icing;  | 1                          | —                    | —                  | —                   | —                  | —                   | 1                  |
| (c) Anti-icing;  | 1                          | —                    | —                  | —                   | —                  | —                   | 1                  |
| (d) Wiper systems;   | 1                          | —                    | —                  | —                   | —                  | —                   | 1                  |
| (e) Rain repellent.  | 1                          | —                    | —                  | —                   | —                  | —                   | 1                  |



| <b>MODULE 13—AIRCRAFT<br/>AERODYNAMICS,<br/>STRUCTURES AND<br/>SYSTEMS</b> | <b>Number of Questions</b> |                      |                    |                     |                    |                     |                    |
|--|----------------------------|----------------------|--------------------|---------------------|--------------------|---------------------|--------------------|
|  | <b>B2</b>                  | <b>B2L<br/>Basic</b> | <b>B2L<br/>C/N</b> | <b>B2L<br/>Ins.</b> | <b>B2L<br/>A/F</b> | <b>B2L<br/>Sur.</b> | <b>B2L<br/>A/S</b> |
| 13.16 Landing gear (ATA 32)  | 1                          | —                    | —                  | —                   | —                  | —                   | 1                  |
| (a) Description;   | 3                          | —                    | —                  | —                   | —                  | —                   | 3                  |
| (b) System;  | 3                          | —                    | —                  | —                   | —                  | —                   | 3                  |
| (c) Air-ground sensing.  | 3                          | —                    | —                  | —                   | —                  | —                   | 3                  |
| 13.17 Oxygen (ATA 35)  | 2                          | —                    | —                  | —                   | —                  | —                   | —                  |
| 13.18 Pneumatic/vacuum<br>(ATA 36)   | 6                          | —                    | —                  | —                   | —                  | —                   | 6                  |
| 13.19 Water/waste (ATA 38)   | 2                          | —                    | —                  | —                   | —                  | —                   | 2                  |
| 13.20 Integrated modular<br>avionics (IMA) (ATA 42)                        | 2                          | —                    | —                  | —                   | —                  | —                   | —                  |
| (a) Overall system description<br>and theory;                              | 1                          | —                    | —                  | —                   | —                  | —                   | —                  |
| (b) Typical system layouts.  | 1                          | —                    | —                  | —                   | —                  | —                   | —                  |
| 13.21 Cabin systems (ATA 44)   | 3                          | —                    | —                  | —                   | —                  | —                   | —                  |
| 13.22 Information systems<br>(ATA 46)                                      | 3                          | —                    | —                  | —                   | —                  | —                   | —                  |

**MODULE 14 — PROPULSION**

| <b>MODULE 14 — PROPULSION</b>                         | <b>Number of Questions</b>                             |
|---|--|
|   | <b>B2 B2L Instruments B2L<br/>Airframe and Systems</b> |
| <b>Total number of questions for the module:</b>      | <b>32</b>  |
| 14.1 Engines  | 3  |
| (a) Turbine engines;                                  | 4  |
| (b) Auxiliary power units (APUs);                     | 2  |
| (c) Piston engines;                                   | 4  |
| (d) Electric and hybrid engines;                      | 3  |
| (e) Engine control.                                   | 10   |
| 14.2 Electric/electronic engine indication<br>systems |  |

| <b>MODULE 14 — PROPULSION</b>                    | <b>Number of Questions</b>                             |
|--|--|
|  | <b>B2 B2L Instruments B2L<br/>Airframe and Systems</b> |
| <b>Total number of questions for the module:</b> | <b>32</b>  |
| 14.3 Propeller systems                           | 2  |
| 14.4 Starting and ignition systems               | 4  |

**MODULE 15 — GAS-TURBINE ENGINE**

| <b>MODULE 15 — GAS-TURBINE ENGINE</b>            | <b>Number of Questions</b> |                  |
|--|----------------------------|------------------|
|  | <b>A1 A3</b>               | <b>B1.1 B1.3</b> |
| <b>Total number of questions for the module:</b> | <b>60</b>                  | <b>92</b>        |
| 15.1 Fundamentals                                | 4                          | 4                |
| 15.2 Engine performance                          | —                          | 6                |
| 15.3 Inlet                                       | 3                          | 4                |
| 15.4 Compressors                                 | 5                          | 7                |
| 15.5 Combustion section                          | 3                          | 3                |
| 15.6 Turbine section                             | 5                          | 5                |
| 15.7 Exhaust                                     | 4                          | 4                |
| 15.8 Bearings and seals                          | —                          | 3                |
| 15.9 Lubricants and fuels                        | 3                          | 4                |
| 15.10 Lubrication systems                        | 3                          | 4                |
| 15.11 Fuel systems                               | 4                          | 5                |
| 15.12 Air systems                                | 3                          | 3                |
| 15.13 Starting and ignition systems              | 3                          | 4                |
| 15.14 Engine indication systems                  | 5                          | 7                |
| 15.15 Alternate turbine constructions            | —                          | 2                |
| 15.16 Turboprop engines                          | 3                          | 5                |
| 15.17 Turboshift engines                         | 2                          | 3                |
| 15.18 Auxiliary power units (APUs)               | 2                          | 3                |
| 15.19 Power plant installation                   | 2                          | 3                |
| 15.20 Fire protection systems                    | 2                          | 3                |
| 15.21 Engine monitoring and ground operation     | 4                          | 7                |
| 15.22 Engine storage and preservation            | —                          | 3                |

**MODULE 16 — PISTON ENGINE**

| <b>MODULE 16 — PISTON ENGINE</b>                 | <b>Number of Questions</b> |                     |
|--|----------------------------|---------------------|
|  | <b>A2 A4</b>               | <b>B1.2 B1.4 B3</b> |
| <b>Total number of questions for the module:</b> | <b>52</b>                  | <b>76</b>           |
| 16.1 Fundamentals of piston engines              | 5                          | 5                   |
| 16.2 Engine performance                          | 3                          | 5                   |
| 16.3 Engine construction                         | 7                          | 8                   |
| 16.4 Engine fuel systems                         | —                          | —                   |
| 16.4.1 Carburettors                              | 3                          | 4                   |
| 16.4.2 Fuel injection systems                    | 2                          | 4                   |
| 16.4.3 Electronic engine control                 | 2                          | 4                   |
| 16.5 Starting and ignition systems               | 5                          | 5                   |
| 16.6 Induction, exhaust, and cooling systems     | 3                          | 4                   |
| 16.7 Supercharging/turbocharging                 | 4                          | 6                   |
| 16.8 Lubricants and fuels                        | 2                          | 5                   |
| 16.9 Lubrication systems                         | 3                          | 4                   |
| 16.10 Engine indication systems                  | 6                          | 7                   |
| 16.11 Power plant installation                   | 3                          | 3                   |
| 16.12 Engine monitoring and ground operation     | 3                          | 5                   |
| 16.13 Engine storage and preservation            | —                          | 3                   |
| 16.14 Alternative piston-engine constructions    | 1                          | 4                   |

**MODULE 17 — PROPELLER**

| <b>MODULE 17 — PROPELLER</b>                     | <b>Number of Questions</b> |                     |
|--|----------------------------|---------------------|
|  | <b>A1 A2</b>               | <b>B1.1 B1.2 B3</b> |
| <b>Total number of questions for the module:</b> | <b>20</b>                  | <b>32</b>           |
| 17.1 Fundamentals of propellers                  | 5                          | 8                   |
| 17.2 Propeller construction                      | 4                          | 5                   |
| 17.3 Propeller pitch control                     | 4                          | 6                   |
| 17.4 Propeller synchronising                     | —                          | 2                   |
| 17.5 Propeller ice protection                    | 2                          | 3                   |
| 17.6 Propeller maintenance                       | 3                          | 6                   |
| 17.7 Propeller storage and preservation          | 2                          | 2                   |

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**Appendix III****Aircraft Type training and Examination Standard  
On the Job Training****1. General**

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

- (a) Theoretical training and examination shall comply with the following requirements:
  - (i) Shall be conducted by a maintenance training organisation appropriately approved in accordance with Part-147 or, when conducted by other organisations, as directly approved by the CAAB.
  - (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 three 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 Part-147 or, when conducted by other organisations, as directly approved by the CAAB.
  - (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 three 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 CAAB.
- (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.

**1. 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 powerplants as outlined in the Systems description Section of the Aircraft Maintenance Manual /Instructions for Continued Airworthiness.

Course objectives: Upon completion of the course, 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, power plant 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 ramp and transit servicing associated with the aircraft for the following systems: Fuel, Power Plants, Hydraulics, Landing Gear, Water/Waste, 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, engine, component and functional checks as specified in the 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.

## 2. 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.

### 2.1. Theoretical element

#### (a) Objective:

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

#### (b) Level of training:

Training levels are those levels defined in point 2 above.

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

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

#### (c) Duration:

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

| Category  | Hours |
|---|-------|
| Aeroplanes with a maximum take-off mass above 30000 kg: |       |
| B1.1  | 150   |
| B1.2  | 120   |
| B2  | 100   |
| C   | 30    |

| Category   | Hours |
|--|-------|
| Aeroplanes with a maximum take-off mass equal or less than 30000 kg and above 5700 kg: |       |
| B1.1   | 120   |
| B1.2   | 100   |
| B2   | 100   |
| C  | 25    |

| Category  | Hours |   |
|---|-------|---|
| Aeroplanes with a maximum take-off mass of 5700 kg and below: |       |   |
| B1.1  | 80    | For non-pressurised piston engine aeroplanes below 2000 kg MTOM the minimum duration can be reduced by 50%. |
| B1.2  | 60    |   |
| B2  | 60    |   |
| C   | 15    |   |
| Helicopters   |       |   |
| B1.3  | 120   | For helicopters in group 2 (as defined in point 66.A.5)(1) the minimum duration can be reduced by 30%.      |
| B1.4  | 100   |   |
| B2  | 100   |   |
| C   | 25    |   |

For the purpose of the table above, a tuition hour means 60 minutes of teaching and excludes 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 CAAB.

(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 CAAB 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 CAAB 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 must 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.

| Chapters   | Levels | Aeroplane s<br>turbine |   | Aeroplane s<br>piston |   | Helicopter s<br>turbine |   | Helicopter s<br>piston |   | Avionics |
|--|--------|------------------------|---|-----------------------|---|-------------------------|---|------------------------|---|----------|
| Licence Category                                 |        | B1                     | C | B1                    | C | B1                      | C | B1                     | C | B2       |
| <b>Introduction Module:</b>                      |        |                        |   |                       |   |                         |   |                        |   |          |
| 05 Time limits/maintenance checks                |        | 1                      | 1 | 1                     | 1 | 1                       | 1 |                        |   |          |
| 06 Dimensions/Areas (MTOM, etc)                  |        | 1                      | 1 | 1                     | 1 | 1                       | 1 |                        |   |          |
| 07 Lifting and Shoring                           |        | 1                      | 1 | 1                     | 1 | 1                       | 1 |                        |   |          |
| 08 Levelling and weighing                        |        | 1                      | 1 | 1                     | 1 | 1                       | 1 |                        |   |          |
| 09 Towing and taxiing                            |        | 1                      | 1 | 1                     | 1 | 1                       | 1 |                        |   |          |
| 10 Parking/mooring, Storing & Return to Service  |        | 1                      | 1 | 1                     | 1 | 1                       | 1 |                        |   |          |
| 11 Placards and Markings                         |        | 1                      | 1 | 1                     | 1 | 1                       | 1 |                        |   |          |
| 12 Servicing                                     |        | 1                      | 1 | 1                     | 1 | 1                       | 1 |                        |   |          |
| 20 Standard practices – only type particular     |        | 1                      | 1 | 1                     | 1 | 1                       | 1 |                        |   |          |
| <b>Helicopters</b>                               |        |                        |   |                       |   |                         |   |                        |   |          |
| 18 Vibration and Noise Analysis (Blade tracking) |        | -                      | - | -                     | - | 3                       | 1 | 3                      | 1 | -        |
| 60 Standard Practices Rotor                      |        | -                      | - | -                     | - | 3                       | 1 | 3                      | 1 | -        |
| 62 Rotors  |        | -                      | - | -                     | - | 3                       | 1 | 3                      | 1 | 1        |
| 62A Rotors – Monitoring and indicating           |        | -                      | - | -                     | - | 3                       | 1 | 3                      | 1 | 3        |
| 63 Rotor Drives                                  |        | -                      | - | -                     | - | 3                       | 1 | 3                      | 1 | 1        |
| 63A Rotor Drives -Monitoring and indicating      |        | -                      | - | -                     | - | 3                       | 1 | 3                      | 1 | 3        |
| 64 Tail Rotor                                    |        | -                      | - | -                     | - | 3                       | 1 | 3                      | 1 | -        |
| 64A Tail Rotor - Monitoring and indicating       |        | -                      | - | -                     | - | 3                       | 1 | 3                      | 1 | 3        |
| 65 Tail Rotor Drive                              |        | -                      | - | -                     | - | 3                       | 1 | 3                      | 1 | -        |

| Chapters  | Levels | Aeroplane s<br>turbine |   | Aeroplane s<br>piston |   | Helicopter s<br>turbine |   | Helicopter s<br>piston |   | Avionics |
|---|--------|------------------------|---|-----------------------|---|-------------------------|---|------------------------|---|----------|
| Licence Category  |        | B1                     | C | B1                    | C | B1                      | C | B1                     | C | B2       |
| 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 | -        |
| <b>Airframe structure</b>   |        |                        |   |                       |   |                         |   |                        |   |          |
| 51 Standard practices and structures (damage classification, assessment and repair) |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| 53 Fuselage   |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| 54 Nacelles/Pylons  |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| 55 Stabilizers  |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| 56 Windows  |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| 57 Wings  |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| 27A Flight Control Surface (All)  |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| 52 Doors  |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| Zonal & Station Identification Systems  |        | 1                      | 1 | 1                     | 1 | 1                       | 1 | 1                      | 1 | 1        |
| <b>Airframe Systems</b>   |        |                        |   |                       |   |                         |   |                        |   |          |
| 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 Pressurization  |        | 3                      | 1 | 3                     | 1 | 3                       | 1 | 3                      | 1 | 3        |
| 21C Safety & Warning Devices  |        | 3                      | 1 | 3                     | 1 | 3                       | 1 | 3                      | 1 | 3        |
| 22 Auto flight  |        | 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        |

| Chapters   | Levels | Aeroplane s<br>turbine |   | Aeroplane s<br>piston |   | Helicopter s<br>turbine |   | Helicopter s<br>piston |   | Avionics |
|--|--------|------------------------|---|-----------------------|---|-------------------------|---|------------------------|---|----------|
| Licence Category                                       |        | B1                     | C | B1                    | C | B1                      | C | B1                     | C | B2       |
| 25 Equipment and Furnishings                           |        | 3                      | 1 | 3                     | 1 | 3                       | 1 | 3                      | 1 | 1        |
| 25A Electronic Equipment including emergency equipment |        | 1                      | 1 | 1                     | 1 | 1                       | 1 | 1                      | 1 | 3        |
| 26 Fire Protection                                     |        | 3                      | 1 | 3                     | 1 | 3                       | 1 | 3                      | 1 | 3        |
| 27A Sys. Operations: Electrical/Fly-by-Wire            |        | 3                      | 1 | -                     | - | -                       | - | -                      | - | 3        |
| 28 Fuel Systems  |        | 3                      | 1 | 3                     | 1 | 3                       | 1 | 3                      | 1 | 2        |
| 28A Fuel Systems — Monitoring and indicating           |        | 3                      | 1 | 3                     | 1 | 3                       | 1 | 3                      | 1 | 3        |
| 29 Hydraulic Power                                     |        | 3                      | 1 | 3                     | 1 | 3                       | 1 | 3                      | 1 | 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 | 2        |
| 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        |
| 36A 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 | -                       | - | -                      | - | 2        |

| Chapters  | Levels | Aeroplane s<br>turbine |   | Aeroplane s<br>piston |   | Helicopter s<br>turbine |   | Helicopter s<br>piston |   | Avionics |
|---|--------|------------------------|---|-----------------------|---|-------------------------|---|------------------------|---|----------|
| Licence Category  |        | B1                     | C | B1                    | C | B1                      | C | B1                     | C | B2       |
| 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<br>(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<br>Compartments  |        | 3                      | 1 | 3                     | 1 | 3                       | 1 | 3                      | 1 | 1        |
| <b>Turbine Engine</b>   |        |                        |   |                       |   |                         |   |                        |   |          |
| 70 Standard Practices—Engines—<br>only type particular  |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 70A Constructional arrangement and<br>operation (Installation<br>Inlet, Compressors, Combustion<br>Section, Turbine Section,<br>Bearings and Seals, Lubrication<br>Systems) |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 70B Engine Performance  |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 71 Power Plant  |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 72 Engine Turbine/Turbo<br>Prop/Ducted Fan/ Unducted fan  |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 73 Engine Fuel and Control  |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 73A FADEC Systems   |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 3        |
| 74 Ignition   |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 3        |
| 75 Air  |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 76 Engine Controls  |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 77 Engine Indicating Systems  |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 3        |
| 78 Exhaust  |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |

| Chapters   | Levels | Aeroplane s<br>turbine |   | Aeroplane s<br>piston |   | Helicopter s<br>turbine |   | Helicopter s<br>piston |   | Avionics |
|--|--------|------------------------|---|-----------------------|---|-------------------------|---|------------------------|---|----------|
| Licence Category   |        | B1                     | C | B1                    | C | B1                      | C | B1                     | C | B2       |
| 79 Oil   |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 80 Starting  |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 82 Water Injection   |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 83 Accessory Gearboxes   |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 84 Propulsion Augmentation   |        | 3                      | 1 | -                     | - | 3                       | 1 | -                      | - | 1        |
| 49 Auxiliary Power Units (APUs)  |        | 3                      | 1 | -                     | - | -                       | - | -                      | - | 3        |
| <b>Piston Engines:</b>   |        |                        |   |                       |   |                         |   |                        |   |          |
| 70 Standard Practices—Engines —<br>only type Particular  |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| 70A Constructional arrangement and<br>operation (Installation<br>Inlet, Compressors, Combustion<br>Section, Turbine Section, |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| Bearings and Seals, Lubrication<br>Systems)  |        |                        |   |                       |   |                         |   |                        |   |          |
| 70B Engine Performance   |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| 71 Power Plant   |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| 73 Engine Fuel and Control   |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| 73A FADEC Systems  |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 3        |
| 74 Ignition  |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 3        |
| 76 Engine Controls   |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| 77 Engine Indicating Systems   |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 3        |
| 78 Exhaust   |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| 79 Oil   |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| 80 Starting  |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| 81 Turbines  |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| 82 Water Injection   |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |

| Chapters                           | Levels | Aeroplane s<br>turbine |   | Aeroplane s<br>piston |   | Helicopter s<br>turbine |   | Helicopter s<br>piston |   | Avionics |
|------------------------------------|--------|------------------------|---|-----------------------|---|-------------------------|---|------------------------|---|----------|
| Licence Category                   |        | B1                     | C | B1                    | C | B1                      | C | B1                     | C | B2       |
| 83 Accessory Gearboxes             |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| 84 Propulsion Augmentation         |        | -                      | - | 3                     | 1 | -                       | - | 3                      | 1 | 1        |
| <b>Propellers:</b>                 |        |                        |   |                       |   |                         |   |                        |   |          |
| 60A Standard Practices — Propeller |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| 61 Propellers/Propulsion           |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| 61A Propeller Construction         |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | -        |
| 61B Propeller Pitch Control        |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | -        |
| 61C Propeller Synchronizing        |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |
| 61D Propeller Electronic control   |        | 2                      | 1 | 2                     | 1 | -                       | - | -                      | - | 3        |
| 61E Propeller Ice Protection       |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | -        |
| 61F Propeller Maintenance          |        | 3                      | 1 | 3                     | 1 | -                       | - | -                      | - | 1        |

- (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 CAAB 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=Trouble Shooting.



| Chapter  | B1/B2 | B1  |     |     |     |    | B2  |     |     |     |    |
|--|-------|-----|-----|-----|-----|----|-----|-----|-----|-----|----|
|  | LOC   | FOT | SGH | R/I | MEL | TS | FOT | SGH | R/I | MEL | TS |
| <b>Introduction Module</b>                             |       |     |     |     |     |    |     |     |     |     |    |
| 05 Time limits/<br>maintenance checks                  | X/X   | —   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 06 Dimensions/Areas                                    | X/X   | —   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 07 Lifting and Shoring                                 | X/X   | —   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 08 Leveling and weighing                               | X/X   | —   | X   | —   | —   | —  | —   | X   | —   | —   | —  |
| 09 Towing & Taxiing                                    | X/X   | —   | X   | —   | —   | —  | —   | X   | —   | —   | —  |
| 10 Parking/mooring,<br>Strong and Return to<br>Service | X/X   | —   | X   | —   | —   | —  | —   | X   | —   | —   | —  |
| 11 Placards and Markings                               | X/X   | —   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 12 Servicing   | X/X   | —   | X   | —   | —   | —  | —   | X   | —   | —   | —  |
| 20 Standard practices —<br>only type particular        | X/X   | —   | X   | —   | —   | —  | —   | X   | —   | —   | —  |
| <b>Helicopters</b>                                     |       |     |     |     |     |    |     |     |     |     |    |
| 18 Vibration and Noise<br>Analysis (Blade tracking)    | X/--  | —   | —   | —   | —   | X  | —   | —   | —   | —   | —  |
| 60 Standard Practices<br>Rotor — only Type<br>Specific | X/X   | —   | X   | —   | —   | —  | —   | X   | —   | —   | —  |
| 62 Rotors  | X/--  | —   | X   | X   | —   | X  | —   | —   | —   | —   | —  |
| 62A Rotors —<br>Monitoring and indicating              | X/X   | X   | X   | X   | X   | X  | —   | —   | X   | —   | X  |
| 63 Rotor Drives  | X/--  | X   | —   | —   | —   | X  | —   | —   | —   | —   | —  |
| 63A Rotor Drives —<br>Monitoring and indicating        | X/X   | X   | —   | X   | X   | X  | —   | —   | X   | —   | X  |
| 64 Tail Rotor  | X/--  | —   | X   | —   | —   | X  | —   | —   | —   | —   | —  |
| 64A Tail rotor —<br>Monitoring and indicating          | X/X   | X   | —   | X   | X   | X  | —   | —   | X   | —   | X  |

| Chapter   | B1/B2 | B1  |     |     |     |    | B2  |     |     |     |    |
|---|-------|-----|-----|-----|-----|----|-----|-----|-----|-----|----|
|   | LOC   | FOT | SGH | R/I | MEL | TS | FOT | SGH | R/I | MEL | TS |
| 65 Tail Rotor Drive   | X/--  | X   | —   | —   | —   | X  | —   | —   | —   | —   | —  |
| 65A Tail Rotor Drive — Monitoring and indicating                                    | X/X   | X   | —   | X   | X   | X  | —   | —   | X   | —   | X  |
| 66 Folding Blades/Pylons  | X/--  | X   | X   | —   | —   | X  | —   | —   | —   | —   | —  |
| 67 Rotor Flight Control   | X/--  | X   | X   | —   | X   | X  | —   | —   | —   | —   | —  |
| 53 Airframe Structure (Helicopter)  |       |     |     |     |     |    |     |     |     |     |    |
| 25 Emergency Floatation Equipment   | X/X   | X   | X   | X   | X   | X  | X   | X   | —   | —   | —  |
| <b>Airframe structure</b>   |       |     |     |     |     |    |     |     |     |     |    |
| 51 Standard practices and structures (damage classification, assessment and repair) |       |     |     |     |     |    |     |     |     |     |    |
| 53 Fuselage   | X/--  | —   | —   | —   | —   | X  | —   | —   | —   | —   | —  |
| 54 Nacelles/Pylons  | X/--  | —   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 55 Stabilizers  | X/--  | —   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 56 Windows  | X/--  | —   | —   | —   | —   | X  | —   | —   | —   | —   | —  |
| 57 Wings  | X/--  | —   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 27A Flight Control Surface (All)  | X/--  | —   | —   | —   | —   | X  | —   | —   | —   | —   | —  |
| 52 Doors  | X/X   | X   | X   | —   | —   | —  | —   | X   | —   | —   | —  |
| <b>Airframe Systems</b>   |       |     |     |     |     |    |     |     |     |     |    |
| 21 Air Conditioning   | X/X   | X   | X   | —   | X   | X  | X   | X   | —   | X   | X  |
| 21A Air Supply  | X/X   | X   | —   | —   | —   | —  | X   | —   | —   | —   | —  |
| 21B Pressurization  | X/X   | X   | —   | —   | X   | X  | X   | —   | —   | X   | X  |
| 21C Safety & Warning Devices  | X/X   | —   | X   | —   | —   | —  | —   | X   | —   | —   | —  |
| 22 Auto flight  | X/X   | —   | —   | —   | X   | —  | X   | X   | X   | X   | X  |

| Chapter  | B1/B2 | B1  |     |     |     |    | B2  |     |     |     |    |
|--|-------|-----|-----|-----|-----|----|-----|-----|-----|-----|----|
|  | LOC   | FOT | SGH | R/I | MEL | TS | FOT | SGH | R/I | MEL | TS |
| 23 Communications                                      | X/X   | —   | X   | —   | X   | —  | X   | X   | X   | X   | X  |
| 24 Electrical Power                                    | X/X   | X   | X   | X   | X   | X  | X   | X   | X   | X   | X  |
| 25 Equipment and Furnishings                           | X/X   | X   | X   | X   | —   | —  | X   | X   | X   | —   | —  |
| 25A Electronic Equipment including emergency equipment | X/X   | X   | X   | X   | —   | —  | X   | X   | X   | —   | —  |
| 26 Fire Protection                                     | X/X   | X   | X   | X   | X   | X  | X   | X   | X   | X   | X  |
| 27 Flight Controls                                     | X/X   | X   | X   | X   | X   | X  | X   | —   | —   | —   | —  |
| 27A Sys. Operations: 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  |

[illegible]

| Chapter   | B1/B2 | B1  |     |     |     |    | B2  |     |     |     |    |
|---|-------|-----|-----|-----|-----|----|-----|-----|-----|-----|----|
|   | LOC   | FOT | SGH | R/I | MEL | TS | FOT | SGH | R/I | MEL | TS |
| <b>Turbine engines:</b>                               |       |     |     |     |     |    |     |     |     |     |    |
| 70B Engine Performance                                | —     | —   | —   | —   | —   | X  | —   | —   | —   | —   | —  |
| 71 Power Plant  | X/--  | —   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 72 Engine Turbine/Turbo Prop/Ducted Fan/Unducted fan  | X/--  | —   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 73 Engine Fuel and Control                            | X/-X  | X   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 73A FADEC Systems                                     | X/X   | X   | —   | X   | X   | X  | X   | —   | X   | X   | X  |
| 74 Ignition   | X/X   | X   | —   | —   | —   | —  | X   | —   | —   | —   | —  |
| 75 Air  | X/--  | —   | —   | X   | —   | X  | —   | —   | —   | —   | —  |
| 76 Engine Controls                                    | X/--  | X   | —   | —   | —   | X  | —   | —   | —   | —   | —  |
| 77 Engine Indicating                                  | X/X   | X   | —   | —   | X   | X  | X   | —   | —   | X   | X  |
| 78 Exhaust  | X/--  | X   | —   | —   | X   | —  | —   | —   | —   | —   | —  |
| 79 Oil  | X/--  | —   | X   | X   | —   | —  | —   | —   | —   | —   | —  |
| 80 Starting   | X/--  | X   | —   | —   | X   | X  | —   | —   | —   | —   | —  |
| 82 Water Injection                                    | X/--  | X   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 83 Accessory Gearboxes                                | X/--  | —   | X   | —   | —   | —  | —   | —   | —   | —   | —  |
| 84 Propulsion Augmentation                            | X/--  | X   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| <b>Auxiliary Power Units (APUs):</b>                  |       |     |     |     |     |    |     |     |     |     |    |
| 49 Auxiliary Power Units (APUs)                       | X/--  | X   | X   | —   | —   | X  | —   | —   | —   | —   | —  |
| <b>Piston Engines:</b>                                |       |     |     |     |     |    |     |     |     |     |    |
| 70 Standard Practices — Engines —only type Particular | —     | —   | X   | —   | —   | —  | —   | X   | —   | —   | —  |

| Chapter  | 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 Systems  | X/X   | X   | —   | X   | X   | X  | X   | X   | X   | X   | X  |
| 74 Ignition  | X/X   | X   | —   | —   | —   | —  | X   | —   | —   | —   | —  |
| 76 Engine Controls   | X/--  | X   | —   | —   | —   | X  | —   | —   | —   | —   | —  |
| 77 Engine Indicating   | X/X   | X   | —   | —   | X   | X  | X   | —   | —   | X   | X  |
| 78 Exhaust   | X/--  | X   | —   | —   | X   | X  | —   | —   | —   | —   | —  |
| 79 Oil   | X/--  | —   | X   | X   | —   | —  | —   | —   | —   | —   | —  |
| 80 Starting  | X/--  | X   | —   | —   | X   | X  | —   | —   | —   | —   | —  |
| 81 Turbines  | X/--  | X   | X   | X   | —   | X  | —   | —   | —   | —   | —  |
| 82 Water Injection   | X/--  | X   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| 83 Accessory Gearboxes   | X/--  | —   | X   | X   | —   | —  | —   | —   | —   | —   | —  |
| 84 Propulsion Augmentation   | X/--  | X   | —   | —   | —   | —  | —   | —   | —   | —   | —  |
| <b>Propellers:</b>   |       |     |     |     |     |    |     |     |     |     |    |
| 60A Standard Practices — Propeller   | —     | —   | —   | X   | —   | —  | —   | —   | —   | —   | —  |
| 61 Propellers/Propulsion   | X/X   | X   | X   | —   | X   | X  | —   | —   | —   | —   | —  |

| Chapter                          | B1/B2 | B1  |     |     |     |    | B2  |     |     |     |    |
|----------------------------------|-------|-----|-----|-----|-----|----|-----|-----|-----|-----|----|
|                                  | LOC   | FOT | SGH | R/I | MEL | TS | FOT | SGH | R/I | MEL | TS |
| 61A Propeller Construction       | X/X   | —   | X   | —   | —   | —  | —   | —   | —   | —   | —  |
| 61B Propeller Pitch Control      | X/--  | X   | —   | X   | X   | X  | —   | —   | —   | —   | —  |
| 61C Propeller Synchronizing      | 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:

- Format of the examination is of the multiple-choice type. Each multiple-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.
- 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.
- 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.

CAAB 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 examination 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 CAAB.

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 multiple-choice questions.
- (c) Practical assessment shall determine a person's competence to perform a task.
- (d) Examination subjects 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 one 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 CAAB to which they apply for an examination, the number and dates of attempts during the last year and the maintenance training organisation or the CAAB where these attempts took place. The maintenance training organisation or the CAAB 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 three 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 CAAB.

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 three 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 CAAB. 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 CAAB, 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”*****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.

**AMC to Section 1 of Appendix III to Part-66 “Aircraft Type Training and Examination Standard. On-the-Job Training”*****Aircraft Type Training***

1. Aircraft type training may be sub-divided 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 where 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

**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 30000kg, 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 CAA.
4. The organisation providing the practical element of the type training should provide trainees 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.

**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
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 *Part-66 Issue 2* 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 *Part-66 Issue 2* in paragraph 3.1(e)—Content and the criteria introduced in paragraph 3.1(d) —Justification of course durationl 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 this 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 CAAB 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 transport category complex motor-powered 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 in order 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 in order 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 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 break down 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 in order 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 practiced-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 CAAB 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 in order 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(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).

**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 Standardll 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.

**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 Part-M, Para 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 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:
    - Have certifying staff or support staff privileges relevant to the OJT tasks;
    - Be competent for the selected tasks;
    - Be safety-orientated;
    - 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.);
    - 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 of a Part-145 organisation 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 are approved by the CAA of the maintenance organisation, and providing training is not one of the privileges of a maintenance organisation, they can only be used when the licensing authority is the same as the CAA of the maintenance organisation. In other cases, it is up to the licensing authority to decide whether it accepts such procedures for the purpose of approving the OJT (refer to AMC 66.B.115).

**\*\*\* Applicable from 1 July 2025. The above-mentioned para will be replaced by the following paragraph.**

“The procedures for OJT of a Part-145 organisation should be included into the approved maintenance organisation exposition (Chapter 3.20, as indicated in AMC1 145.A.70(a)).”

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

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

The experience must 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:<br>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   |
| B 1.1        | None     | 6 months | 6 months | 6 months |          | 6 months | 6 months | 6 months | 1 year  | 6 months |
| B 1.2        | 6 months | None     | 6 months | 6 months | 2 years  |          | 2 years  | 6 months | 2 years | None     |
| B 1.3        | 6 months | 6 months | None     | 6 months | 6 months | 6 months |          | 6 months | 1 year  | 6 months |
| B 1.4        | 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 | -        |

**Appendix V****CAAB Form 19****APPLICATION FOR INITIAL/AMENDMENT/RENEWAL OF PART-66  
AIRCRAFT MAINTENANCE ENGINEER LICENCE (AML)****APPLICANTS DETAIL**

Name .....

Nationality: ..... Date & Place of Birth .....

National ID or PP Number: .....

Permanent Address:.....

City: ..... Postcode: ..... Country:.....

Present Address: .....

City: ..... Postcode: ..... Country:.....

Telephone Number ..... Mobile Phone Number .....

E-mail .....

**PART-66 AML Details (if applicable):**

Licence No: ..... Date of Issue: .....

**EMPLOYERS DETAILS (if applicable):**

Name: .....

Address: .....

.....

Maintenance Organization Approval Reference: .....

Tel: .....Date employment commenced:.....

**APPLICATION FOR: (Tick relevant boxes):**

|  |   |  |
|--|---|--|
| 1. Initial issue of AML <input type="checkbox"/> | 3a. Type Endorsements: <input type="checkbox"/>             | 3c. Removal of Limitation (Type): <input type="checkbox"/> |
| 2. Renewal of AML <input type="checkbox"/>       | 3b. Removal of Limitation (Basic): <input type="checkbox"/> | 3d. Change of Applicants Details: <input type="checkbox"/> |
| 3. Amendment to 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 2000 kg & below |                          |                          |                          | <input type="checkbox"/> |                          |
| Large Aircraft  |                          |                          |                          |                          | <input type="checkbox"/> |
| Aircraft other than large aircraft                                  |                          |                          |                          |                          | <input type="checkbox"/> |

**Type endorsements/Limitation removal—List full airframe/engine combination (if applicable) :**

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

**EXPERIENCE**

Part-147 Student:...Year..... Months.

Other Experienced Applicants :

.....Year.....Months.

Experience credits claimed (if applicable): .....Year.....Months.....

**EXAMINATION MODULES COMPLETED**

Full Modules (Circle as appropriate): 1 , 2, 3, 4, 5, 6 , 7A, 7B, 8, 9A, 9B 10, 11A, 11B, 11C, 12, 13, 14, 15, 16, 17A, 17B;

Part Modules:.....

.....

| Copy of Certificates/documents to be attached |                          |                                |                          |  |                          |
|---|--------------------------|--------------------------------|--------------------------|--|--------------------------|
| Initial issue of AML                          |                          | Renewal of AML                 |                          | Amendment to AML<br>(3a,3b,3c & 3d)            |                          |
| National ID/Passport                          | <input type="checkbox"/> | National ID/Passport           | <input type="checkbox"/> | National ID/Passport                           | <input type="checkbox"/> |
| Part-66 module(s)                             | <input type="checkbox"/> | Part-66 AML                    | <input type="checkbox"/> | Part-66 AML                                    | <input type="checkbox"/> |
| AME logbook                                   | <input type="checkbox"/> | Evidence of current experience | <input type="checkbox"/> | Part-66 module(s)                              | <input type="checkbox"/> |
| <b>Conversion to Part-66 AML</b>              |                          |                                |                          | Type Training Certificates                     | <input type="checkbox"/> |
| National ID/Passport                          | <input type="checkbox"/> | Part-66 module(s)              | <input type="checkbox"/> | Evidence of a/c type experience                | <input type="checkbox"/> |
| Part-D AML                                    | <input type="checkbox"/> | Evidence of current experience | <input type="checkbox"/> | Police report signed and dated (if applicable) | <input type="checkbox"/> |

| Charges                           |
|-----------------------------------|
| Fee of Taka:..... In words: ..... |
| Bank details:.....                |
| Receipt No.: ..... Date: .....    |

| Declaration by the applicant:   |
|---|
| 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 understand that any incorrect information could disqualify me from holding a Part-66 AML.   |
| Signed: ..... Name: .....   |
| Date: .....   |

|  |
|--|
| <b>Recommendation (if applicable):</b> It is hereby certified that the applicant has met the relevant maintenance knowledge and experience requirements of Part-66 and it is recommended that CAAB may grant or endorse the Part-66 AML. |
| Signed: ..... Name: .....  |
| Position: ..... Date: .....  |

**General Guidance: ANO (Aw) PART -66 Licence Application Form for Initial Issue/Amendment/Renewal**

Having clear concise supporting data will enable CAAB to issue licences more effectively and with less risk of errors or rejections. CAAB may contact you for clarification of details on applications and therefore it is most important that you have the correct information before applying. For initial AML, initial type endorsements and amendment of AML, Aircraft Maintenance Engineer's Log Book appropriate section has to be completed and submitted.

**Please note failure to submit a correctly completed application form and the required documentation will lead to the rejection of your application.**

**Applicants Details**

To be completed in all cases

**Licence Details**

Required for every application other than initial AML

**Employers Details**

To be completed if applicable

**Application**

Indicates what type of licence you are applying for. For type rating(s) endorsement, please list the individual types by airframe engine combination.

**Category**

Required for initial or any amendments to the AML.

**Experience / Examination Modules Completed**

- (1) To be completed for initial or amendments to AML or
- (2) Claiming an exam accredited and recognized by the CAAB.

**Copy of Certificates/documents to be attached**

All the applicable documents and certificate to be attached to the CAAB Form 19.

**Charges**

This application will not be processed until the applicable charges have been received.

**Declaration**

By signing the declaration you are confirming that all of the information is correct and true.

**Recommendation**


The referee required to countersign the form must be a Quality Manager or the immediate senior person within the Quality Department of your current employer, or the organisation where the experience was gained.

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**Appendix VI****Aircraft Maintenance Licence (CAAB Form 26)**

1. An example of the aircraft maintenance licence referred to in Part-66 can be found on the following pages.
2. The document must 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 Part- 66.
3. The document may be bilingual provided one of the languages is English.
4. Reserved.
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 will be prepared and issued by CAAB.
7. The preparation of any change to an existing aircraft maintenance licence will be carried out by CAAB.
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 authorisation pursuant to paragraph 145.A.35 of Part-145 and may result in prosecution under national law.
10. Reserved.
11. The annex to CAAB Form 26 is optional and may only be used to include national privileges not covered by Part-66, where such privileges were covered by the national regulation in force prior to the implementation of Part-66.

12. Reserved.
13. With regard to the aircraft type rating page CAAB 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. 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 Part-66.

| <p>People's Republic of Bangladesh<br/>Civil Aviation Authority, Bangladesh</p>  <p><b>ANO Part-66</b><br/>Aircraft Maintenance Engineer<br/>Licence</p> <p>LIC No. : BD.66.XXXX</p> <p>CAAB Form 26</p> | <p><b>VII. CONDITIONS:</b></p> <p>This licence must be signed by the holder and be accompanied by an identity document containing a photograph of the licence holder.</p> <p>Endorsement of any categories on the page(s) entitled ANO Part-66 CATEGORIES only, does not permit the holder to issue a certificate of release to service for an aircraft.</p> <p>This licence when endorsed with an aircraft type rating meets the intent of ICAO annex 1.</p> <p>The privileges of the holder of this licence are prescribed by ANO Part-66 and the applicable requirements of ANO Part-M and ANO Part-145.</p> <p>This licence remains valid until the date specified on the limitation page unless previously suspended or revoked</p> <p>The privileges of this licence may not be exercised unless in the preceding two years period the holder has had either six months of maintenance experience in accordance with the privileges granted by the licence, or met the provision for the issue of the appropriate privileges.</p> | <p><b>I. Full Name of Holder:</b></p> <p style="text-align: center;">Affix 25X20 mm<br/>photograph here</p> <p><b>II. Date and Place of Birth:</b></p> <p><b>III. Address:</b></p> <p><b>IV. Nationality:</b></p> <p><b>V. Signature of Holder:</b></p> | <p><b>VIII. ANO Part-66 CATEGORIES</b></p> <table border="1"> <thead> <tr> <th>Validity:</th> <th>A</th> <th>B1</th> <th>B2</th> <th>B3</th> <th>C</th> </tr> </thead> <tbody> <tr> <td>Aeroplane Turbine</td> <td>n/a</td> <td>n/a</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Aeroplane Piston</td> <td>n/a</td> <td>n/a</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Helicopter Turbine</td> <td>n/a</td> <td>n/a</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Helicopter Piston</td> <td>n/a</td> <td>n/a</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Avionics</td> <td></td> <td></td> <td>n/a</td> <td></td> <td></td> </tr> <tr> <td>Large Aircraft</td> <td></td> <td></td> <td></td> <td></td> <td>n/a</td> </tr> <tr> <td>Aircraft other than Large</td> <td></td> <td></td> <td></td> <td></td> <td>n/a</td> </tr> <tr> <td>Piston Engine non-pressurised Aeroplanes of 2000 kg MTOM and below</td> <td></td> <td></td> <td></td> <td>n/a</td> <td></td> </tr> </tbody> </table> <p><b>IX. Signature of issuing officer &amp; date:</b></p> <p><b>X. Seal or stamp of issuing Authority:</b></p> | Validity: | A   | B1 | B2 | B3 | C | Aeroplane Turbine | n/a | n/a |  |  |  | Aeroplane Piston | n/a | n/a |  |  |  | Helicopter Turbine | n/a | n/a |  |  |  | Helicopter Piston | n/a | n/a |  |  |  | Avionics |  |  | n/a |  |  | Large Aircraft |  |  |  |  | n/a | Aircraft other than Large |  |  |  |  | n/a | Piston Engine non-pressurised Aeroplanes of 2000 kg MTOM and below |  |  |  | n/a |  |
|---|---|---|---|-----------|-----|----|----|----|---|-------------------|-----|-----|--|--|--|------------------|-----|-----|--|--|--|--------------------|-----|-----|--|--|--|-------------------|-----|-----|--|--|--|----------|--|--|-----|--|--|----------------|--|--|--|--|-----|---------------------------|--|--|--|--|-----|--|--|--|--|-----|--|
|   | Validity:   | A   | B1  | B2        | B3  | C  |    |    |   |                   |     |     |  |  |  |                  |     |     |  |  |  |                    |     |     |  |  |  |                   |     |     |  |  |  |          |  |  |     |  |  |                |  |  |  |  |     |                           |  |  |  |  |     |  |  |  |  |     |  |
| Aeroplane Turbine   | n/a   | n/a   |   |           |     |    |    |    |   |                   |     |     |  |  |  |                  |     |     |  |  |  |                    |     |     |  |  |  |                   |     |     |  |  |  |          |  |  |     |  |  |                |  |  |  |  |     |                           |  |  |  |  |     |  |  |  |  |     |  |
| Aeroplane Piston  | n/a   | n/a   |   |           |     |    |    |    |   |                   |     |     |  |  |  |                  |     |     |  |  |  |                    |     |     |  |  |  |                   |     |     |  |  |  |          |  |  |     |  |  |                |  |  |  |  |     |                           |  |  |  |  |     |  |  |  |  |     |  |
| Helicopter Turbine  | n/a   | n/a   |   |           |     |    |    |    |   |                   |     |     |  |  |  |                  |     |     |  |  |  |                    |     |     |  |  |  |                   |     |     |  |  |  |          |  |  |     |  |  |                |  |  |  |  |     |                           |  |  |  |  |     |  |  |  |  |     |  |
| Helicopter Piston   | n/a   | n/a   |   |           |     |    |    |    |   |                   |     |     |  |  |  |                  |     |     |  |  |  |                    |     |     |  |  |  |                   |     |     |  |  |  |          |  |  |     |  |  |                |  |  |  |  |     |                           |  |  |  |  |     |  |  |  |  |     |  |
| Avionics  |   |   | n/a   |           |     |    |    |    |   |                   |     |     |  |  |  |                  |     |     |  |  |  |                    |     |     |  |  |  |                   |     |     |  |  |  |          |  |  |     |  |  |                |  |  |  |  |     |                           |  |  |  |  |     |  |  |  |  |     |  |
| Large Aircraft  |   |   |   |           | n/a |    |    |    |   |                   |     |     |  |  |  |                  |     |     |  |  |  |                    |     |     |  |  |  |                   |     |     |  |  |  |          |  |  |     |  |  |                |  |  |  |  |     |                           |  |  |  |  |     |  |  |  |  |     |  |
| Aircraft other than Large   |   |   |   |           | n/a |    |    |    |   |                   |     |     |  |  |  |                  |     |     |  |  |  |                    |     |     |  |  |  |                   |     |     |  |  |  |          |  |  |     |  |  |                |  |  |  |  |     |                           |  |  |  |  |     |  |  |  |  |     |  |
| Piston Engine non-pressurised Aeroplanes of 2000 kg MTOM and below  |   |   |   | n/a       |     |    |    |    |   |                   |     |     |  |  |  |                  |     |     |  |  |  |                    |     |     |  |  |  |                   |     |     |  |  |  |          |  |  |     |  |  |                |  |  |  |  |     |                           |  |  |  |  |     |  |  |  |  |     |  |
| <p><b>VI. LIC NO. : BD.66.XXXX</b></p>  | <p><b>VI. LIC NO. : BD.66.XXXX</b></p>  | <p><b>VI. LIC NO. : BD.66.XXXX</b></p>  |   |           |     |    |    |    |   |                   |     |     |  |  |  |                  |     |     |  |  |  |                    |     |     |  |  |  |                   |     |     |  |  |  |          |  |  |     |  |  |                |  |  |  |  |     |                           |  |  |  |  |     |  |  |  |  |     |  |

|  |   |  |            |  |   |            |                    |
|--|---|--|------------|--|---|------------|--------------------|
| <p>INTENTIONALLY LEFT BLANK</p>        | <p>Annex to CAAB FORM 26</p> <p><b>XIII. PRIVILEGES outside the scope of ANO Part-66, in accordance with ANO Part-66.</b></p> | <p><b>XII. ANO Part-66 LIMITATIONS</b></p> |            |  | <p><b>XI. ANO Part-66 AIRCRAFT TYPE RATINGS</b></p> |            |                    |
|  |   | <p>A/C Type or Group</p>                   | <p>CAT</p> | <p>Limitations</p>                     | <p>A/C Type or Group</p>                            | <p>CAT</p> | <p>Limitations</p> |
|  |   |  |            |  |   |            |                    |
|  | <p><b>Official Stamp &amp; Date:</b></p>  | <p><b>Valid Until:</b></p>                 |            |  |   |            |                    |
| <p><b>VI. LIC NO. : BD.66.XXXX</b></p> | <p><b>VI. LIC NO. : BD.66.XXXX</b></p>  |  |            | <p><b>VI. LIC NO. : BD.66.XXXX</b></p> |   |            |                    |

## **CHAPTER 4**

### **APPENDICES TO AMC**

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**Appendix I****Aircraft Type Ratings for Part-66 Aircraft Maintenance Licence****Notes on when the licences should be modified:**

- When a modification is introduced by this Issue of ANO Part-66 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 at next renewal or when the licence is re-issued, unless there is an urgent reason to modify the licence.

**Notes on aircraft modified by STC:**

- It is not the intention of this document to include all aircraft modified by STCs.
- When an aircraft has been modified by an STC for installation of another engine, the Part-66 type rating of this aircraft may change i.e. from Group 2 to Group 1. This is not reflected in this document. In case the applicant to a licence faces such a case, he/she may inform CAAB and a new type rating will be defined by CAAB.

**In the following tables:**

- The column “TC Holder” includes the TC Holder as defined in the TCDS (FAA or other) or the Specific Airworthiness Specifications (SAS).
- Some “TC holders” designations have been corrected to add the information: “Aircraft with an SAS”, this means that the aircraft listed under this TC holder designation is considered an “Orphan Aircraft”.
- In Group 3, a third column has been added which is called “Type of structure” and which intends to assist in identifying the experience required for this type with a view on removing existing limitations on the licence.
- Wooden structure covered with fabric is considered to fall under wooden structure. For Aeroplanes with a combination of structures; e.g. metal tubing fuselage and wooden wings, both experience “metal tube covered with fabric” and “wooden structure” are required.



**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<br>(Aircraft with SAS) | SN 601                  | Corvette               | Aerospatiale SN-601 (PWC JT15D)     |
| AIRBUS                        | A300 B1                 |                        | Airbus A300 basic model (GE CF6)    |
|                               | 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             |                        |                                     |
|                               | A300 B2-320             |                        | Airbus A300 basic model (PW JT9D)   |
|                               | A300 B4-120             |                        |                                     |
|                               | A300 B4-220             |                        |                                     |
|                               | A300 B4-601             |                        | Airbus A300-600 (GE CF6)            |
|                               | A300 B4-603             |                        |                                     |
|                               | A300 B4-605 R           |                        |                                     |
|                               | A300 C4-605 R Variant F |                        |                                     |
|                               | A300 F4-605 R           |                        |                                     |
|                               | A300 B4-622             |                        | Airbus A300-600 (PW 4000)           |
|                               | A300 B4-622 R           |                        |                                     |
|                               | A300 F4-622 R           |                        |                                     |

| TC holder | Model           | Commercial Designation | Part-66 Type rating endorsement    |
|-----------|-----------------|------------------------|------------------------------------|
|           | A300 B4-620     | Beluga                 | Airbus A300-600 (PW JT9D)          |
|           | A300 C4-620     |                        |                                    |
|           | A300 F4-608 ST  |                        | Airbus A300-600ST (GE CF6)         |
|           | A310-203        |                        | Airbus A310 (GE CF6)               |
|           | A310-203 C      |                        |                                    |
|           | A310-221        |                        |                                    |
|           | A310-304        |                        |                                    |
|           | A310-308        |                        |                                    |
|           | A310-324        |                        | Airbus A310 (PW 4000)              |
|           | A310-325        |                        |                                    |
|           | A310-204        |                        | Airbus A310 (PW JT9D)              |
|           | A310-222        |                        |                                    |
|           | A310-322        |                        |                                    |
|           | A318-120 series |                        | Airbus A318 (PW 6000)              |
|           | A318-110 series |                        | Airbus A318/A319/A320/A321 (CFM56) |
|           | A319-110 series |                        |                                    |
|           | A320-111        |                        |                                    |
|           | A320-210 series |                        |                                    |
|           | A321-110 series |                        |                                    |
|           | A321-210 series |                        |                                    |
|           | A319-130 series |                        | Airbus A319/A320/A321 (IAE V2500)  |
|           | A320-230 series |                        |                                    |
|           | A321-130 series |                        |                                    |
|           | A321-230 series |                        |                                    |
|           | A330-200 series |                        | Airbus A330 (GE CF6)               |
|           | A330-300 series |                        |                                    |
|           | A330-220 series |                        | Airbus A330 (PW 4000)              |
|           | A330-320 series |                        |                                    |
| AIRBUS    | A330-240 series |                        | Airbus A330 (RR RB 211 Trent 700)  |
|           | A330-340 series |                        |                                    |
|           | A340-210 series |                        | Airbus A340 (CFM56)                |
|           | A340-310 series |                        |                                    |

| TC holder                                | Model               | Commercial Designation | Part-66 Type rating endorsement    |
|--|---------------------|------------------------|------------------------------------|
|  | A340-540 series     |                        | Airbus A340 (RR RB 211 Trent 500)  |
|  | A340-640 series     |                        |                                    |
|  | 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)  |
| Airbus Military Sociedad Limitada (AMSL) | A400M-180           |                        | Airbus A400M (EPI TP400)           |
| AIRCRAFT INDUSTRIES                      | L-410 M/UVP         | Turbolet               | Let L-410 (Walter M601)            |
|  | L-410 UVP-E         |                        |                                    |
|  | L-410 UVP-E20       |                        |                                    |
|  | L-410 UVP-E20 CARGO |                        |                                    |
|  | L-410 UVP-E9        |                        |                                    |
|  | L-410 UVP-E-LW      |                        |                                    |
|  | L-410 UVP-LW        |                        |                                    |
|  | L-420               |                        | Let L-420 (Walter M601)            |
| ALENIA AERMACCHI                         | C-27J               |                        | Alenia C-27 (Allison/RR AE2100)    |
| ANTONOV                                  | AN-26               |                        | Antonov AN26 (Ivchenko AI-24)      |
|  | AN-26B              |                        |                                    |
| ATR-GIE<br>Avions de Transport Régional  | ATR 42-200          |                        | ATR 42-200/300 series (PWC PW120)  |
|  | ATR 42-300          |                        |                                    |
|  | ATR 42-320          |                        |                                    |
|  | ATR 42-400          | 42-500                 | ATR 42-400/500/72-212A (PWC PW120) |
|  | ATR 42-500          | 42-600                 |                                    |
|  | ATR 42-500          | 72-500                 |                                    |
|  | ATR 72-212 A        | 72-600                 |                                    |
|  | ATR 72-212 A        |                        |                                    |

| TC holder                           | Model                 | Commercial Designation | Part-66 Type rating endorsement                |
|-------------------------------------|-----------------------|------------------------|--|
|                                     | ATR 72-101            |                        | ATR 72-100/200 series (PWC PW120)              |
|                                     | ATR 72-102            |                        |  |
|                                     | ATR 72-201            |                        |  |
|                                     | ATR 72-202            |                        |  |
|                                     | ATR 72-211            |                        |  |
|                                     | ATR 72-212            |                        |  |
| BAE SYSTEMS                         | BAe ATP               |                        | ATP (PWC PW120)                                |
|                                     | AVRO 146-RJ100        |                        | BAe 146/ AVRO 146-RJ (Honeywell ALF500 Series) |
|                                     | AVRO 146-RJ115        |                        |  |
|                                     | AVRO 146-RJ70         |                        |  |
|                                     | AVRO 146-RJ85         |                        |  |
|                                     | BAe 146 Series 100    |                        |  |
|                                     | BAe 146 Series 200    |                        |  |
|                                     | BAe 146 Series 300    |                        |  |
|                                     | HP.137 Jetstream Mk.1 | Jetstream 1            | HP.137 (Turbomeca Astazou)                     |
|                                     | HP.137 Jetstream Mk.1 | Jetstream 2            |  |
|                                     | HS 748 Series 2A      |                        | HS748 (RRD Dart)                               |
|                                     | HS 748 Series 2B      |                        |  |
|                                     | HS.748 Series 1       |                        |  |
|                                     | HS.748 Series 2       |                        |  |
|                                     | Jetstream 200         |                        | Jetstream 200 (Turbomeca Astazou)              |
| BAE SYSTEMS                         | Jetstream 3100        | Jetstream 31           | Jetstream 31/32 (Honeywell TPE331)             |
|                                     | Jetstream 3200        | Jetstream 32/32EP      |  |
|                                     | Jetstream 4100        |                        | Jetstream 41 (Honeywell TPE331)                |
| BERIEV<br>Aircraft Company          | Be-200ES-E            |                        | Beriev 200 (Ivchenko D-436TP)                  |
| B-N GROUP<br>Ltd. (Britten- Norman) | BN2T/-2/-2R/-4R/-4S   | Turbine<br>Islander    | Britten-Norman BN2T Series<br>(RR Corp 250)    |

| TC holder         | Model            | Commercial Designation | Part-66 Type rating endorsement    |
|-------------------|------------------|------------------------|------------------------------------|
| BOEING<br>COMPANY | B707-200         |                        | Boeing 707 (PW JT4)                |
|                   | B707-200B        |                        |                                    |
|                   | B707-300 Series  |                        |                                    |
|                   | B707-400 Series  |                        | Boeing 707 (RR Conway)             |
|                   | B707-100         | Long Body              | Boeing 707/720 (PW JT3D)           |
|                   | B707-100B        | Long Body              |                                    |
|                   | B707-100B        | Short Body             |                                    |
|                   | B707-300B Series |                        |                                    |
|                   | B707-300C Series |                        |                                    |
|                   | B720             |                        |                                    |
|                   | B720B            |                        |                                    |
|                   | B727 Series      |                        | Boeing 727 (PW JT8D)               |
|                   | B727-100 Series  |                        |                                    |
|                   | B727-100C Series |                        |                                    |
|                   | B727-200 Series  |                        |                                    |
|                   | B727C Series     |                        |                                    |
|                   | B737-100         |                        | Boeing 737-100/200 (PW JT8D)       |
|                   | B737-200         |                        |                                    |
|                   | B737-200C        |                        |                                    |
|                   | B737-300         |                        | Boeing 737-300/400/500 (CFM56)     |
|                   | B737-400         |                        |                                    |
|                   | B737-500         |                        |                                    |
|                   | B737-600         |                        | Boeing 737-600/700/800/900 (CFM56) |
|                   | B737-700         |                        |                                    |
|                   | B737-800         |                        |                                    |
|                   | B737-900         |                        |                                    |
|                   | B737-900ER       |                        |                                    |
|                   | B747-100         |                        | Boeing 747-100 (PW JT9D)           |

| TC holder         | Model             | Commercial Designation        | Part-66 Type rating endorsement |
|-------------------|-------------------|-------------------------------|---------------------------------|
|                   | B747-200B         |                               | Boeing 747-200/300 (GE CF6)     |
|                   | B747-200C         |                               |                                 |
|                   | B747-200F         |                               |                                 |
|                   | B747-300          |                               |                                 |
|                   | B747-200B         |                               | Boeing 747-200/300 (RR RB211)   |
|                   | B747-200C         |                               |                                 |
|                   | B747-200F         |                               |                                 |
|                   | B747-300          |                               |                                 |
|                   | B747-400          |                               | Boeing 747-400 (GE CF6)         |
|                   | B747-400F/SF(BCF) |                               |                                 |
|                   | B747-400          |                               | Boeing 747-400 (PW 4000)        |
|                   | B747-400F/SF(BCF) |                               |                                 |
|                   | B747-400          |                               | Boeing 747-400 (RR RB211)       |
|                   | B747-400F/SF(BCF) |                               |                                 |
|                   | B747-8F           | Freighter<br>Intercontinental | Boeing 747-8 (GE GENx)          |
|                   | B747-8I           |                               |                                 |
|                   | B757-200          |                               | Boeing 757-200/300 (PW 2000)    |
|                   | B757-200PF        |                               |                                 |
|                   | B757-300          |                               |                                 |
|                   | B757-200          |                               | Boeing 757-200/300 (RR RB211)   |
|                   | B757-200PF        |                               |                                 |
|                   | B757-300          |                               |                                 |
| BOEING<br>COMPANY | B767-200          |                               | Boeing 767-200/300 (PW 4000)    |
|                   | B767-300          |                               |                                 |
|                   | B767-300BCF       |                               |                                 |
|                   | B767-200          |                               | Boeing 767-200/300 (PW JT9D)    |
|                   | B767-300          |                               |                                 |
|                   | B767-300BCF       |                               |                                 |
|                   | B767-200          |                               | Boeing 767-200/300/400 (GE CF6) |

| TC holder  | Model                        | Commercial Designation       | Part-66 Type rating endorsement                                   |
|------------|------------------------------|------------------------------|---|
|            | B767-300                     |                              |   |
|            | B767-300F                    |                              |   |
|            | B767-300BCF                  |                              |   |
|            | B767-400ER                   |                              |   |
|            | B767-300                     |                              | Boeing 767-300 (RR RB211)   |
|            | B777-200                     |                              | Boeing 777-200/300 (GE 90)  |
|            | B777-200LR                   |                              |   |
|            | B777-300ER                   |                              |   |
|            | B777F                        | Freighter                    |   |
|            | B777-200                     |                              | Boeing 777-200/300 (PW 4000)                                      |
|            | B777-300                     |                              |   |
|            | B777-200                     |                              | Boeing 777-200/300 (RR RB211 Trent 800)                           |
|            | B777-300                     |                              |   |
|            | B787-8                       | Dreamliner                   | Boeing 787-8 (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                  | Global Express Global 6000   | Bombardier BD-700 Series (RRD BR710)                              |
|            | BD-700-1A11                  | Global 5000 Global 5000 GVFD |   |
|            | CL600-1A11                   | Challenger 600               | Bombardier CL-600-1A11 (Honeywell ALF502)                         |
|            | CL-600-2A12 (601 Variant)    | Challenger 601               | Bombardier CL-600-2A12/-2B16 (variant CL 601/601-3A/3R) (GE CF34) |
|            | CL-600-2B16 (601-3A Variant) | Challenger 601-3A            |   |

| TC holder | Model                           | Commercial Designation                | Part-66 Type rating endorsement                        |
|-----------|---------------------------------|---------------------------------------|--|
|           | CL-600-2B16<br>(601-3R Variant) | Challenger<br>601-3R                  | Bombardier CL-600-2B16 (variant CL 604) (GE CF34)      |
|           | CL-600-2B16 (CL 604<br>Variant) | Challenger-<br>604 (MSN <<br>5701)    |  |
|           | CL-600-2B16 (CL 604<br>Variant) | Challenger-<br>605 (MSN ><br>5701)    |  |
|           | CL-600-2B19                     | Regional Jet<br>Series 100            | Bombardier CL-600-2B19 (GE CF34)                       |
|           | CL-600-2C10                     | Regional Jet<br>Series<br>700/701/702 | Bombardier CL-600-2C10/-2D15/-2D24/-<br>2E25 (GE CF34) |
|           | CL-600-2D15                     | Regional Jet<br>Series 705            |  |
|           | CL-600-2D24                     | Regional Jet<br>Series 900            |  |
|           | CL-600-2E25                     | Regional Jet<br>Series 1000           |  |
|           | DHC-8-102                       | DHC-8<br>Series 100                   | Bombardier DHC-8-100/200/300 (PWC<br>PW 120)           |
|           | DHC-8-103                       | DHC-8<br>Series 100                   |  |
|           | DHC-8-106                       | DHC-8<br>Series 100                   |  |
|           | DHC-8-201                       | DHC-8<br>Series 200                   |  |
|           | DHC-8-202                       | DHC-8<br>Series 200                   |  |
|           | DHC-8-301                       | DHC-8<br>Series 300                   |  |
|           | DHC-8-311                       | DHC-8<br>Series 300                   |  |
|           | DHC-8-314                       | DHC-8<br>Series 300                   |  |



| TC holder                  | Model                         | Commercial Designation   | Part-66 Type rating endorsement  |
|----------------------------|-------------------------------|--------------------------|----------------------------------|
|                            | DHC-8-315                     | DHC-8<br>Series 300      |                                  |
| BOMBARDIER                 | DHC-8-401                     | DHC-8<br>Series 400      | Bombardier DHC-8-400 (PWC PW150) |
|                            | DHC-8-402                     | DHC-8<br>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<br>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 /<br>Conquest    | Cessna 425 (PWC PT6)             |
|                            | 441                           |                          | Cessna 441 (Honeywell TPE331)    |
|                            | 500                           | Citation /<br>Citation I | Cessna 500/501 (PWC JT15D)       |
|                            | 501                           | Citation I               |                                  |
|                            | 510                           |                          | Cessna 510 (PWC PW615)           |
|                            | 525                           | Citation Jet<br>CJ1      | Cessna 525/525A (Williams FJ 44) |
|                            | 525A                          | Citation Jet<br>CJ2      |                                  |
|                            | 525B                          | Citation Jet<br>CJ3      | Cessna 525B (Williams FJ 44)     |
|                            | 525C                          | Citation Jet<br>CJ4      | Cessna 525C (Williams FJ 44)     |

| TC holder         | Model                   | Commercial Designation | Part-66 Type rating endorsement |
|-------------------|-------------------------|------------------------|---------------------------------|
|                   | 550                     | Citation II            | Cessna 550/551/560 (PWC JT15D)  |
|                   | 560                     | Citation V             |                                 |
|                   | 560                     | Citation Ultra         |                                 |
|                   | S550                    | Citation S/II          |                                 |
|                   | 551                     | Citation II            |                                 |
|                   | 550                     | Citation Bravo         | Cessna 550/560 (PWC PW530/535)  |
|                   | 560                     | Citation Encore        |                                 |
|                   | 560                     | Citation Encore+       |                                 |
|                   | 560XLS                  | Citation XLS           | Cessna 560XL/XLS (PWC PW545)    |
|                   | 560 XLS+                | Citation XLS+          |                                 |
|                   | 560 XL                  | Citation Excell        |                                 |
|                   | 650                     | Citation III, VI       | Cessna 650 (Honeywell TFE731)   |
|                   | 650                     | Citation VII           |                                 |
|                   | 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          | (Basic) Fan Jet Falcon | Falcon 20 (GE CF700)            |
|                   | Fan Jet Falcon Series C |                        |                                 |
|                   | Fan Jet Falcon Series D |                        |                                 |
|                   | Fan Jet Falcon Series E |                        |                                 |
|                   | Fan Jet Falcon Series F |                        |                                 |
|                   | Fan Jet Falcon Series G |                        | Falcon 200 (Honeywell ATF 3-6)  |
|                   | Mystère Falcon 200      |                        |                                 |
|                   | Mystère Falcon 20GF     |                        |                                 |

| TC holder         | Model                | Commercial Designation | Part-66 Type rating endorsement      |
|-------------------|----------------------|------------------------|--------------------------------------|
|                   | Falcon 2000          |                        | Falcon 2000 (CFE 738)                |
|                   | Falcon 2000EX        |                        | Falcon 2000EX (PWC PW308)            |
|                   | Falcon 2000EX        | F2000EX EASy           | Falcon 2000EX EASy (PWC PW308)       |
|                   | Falcon 2000EX        | F2000DX                |                                      |
|                   | Falcon 2000EX        | F2000LX                |                                      |
|                   | Falcon 2000EX        | F2000LXS               |                                      |
|                   | Falcon 2000EX        | F2000S                 |                                      |
|                   | Mystère Falcon 20-C5 |                        | Falcon 20-5 (Honeywell TFE731)       |
|                   | Mystère Falcon 20-D5 |                        |                                      |
|                   | Mystère Falcon 20-E5 |                        |                                      |
|                   | Mystère Falcon 20-F5 |                        |                                      |
|                   | Mystère Falcon 50    |                        | Falcon 50 (Honeywell TFE731)         |
|                   | Mystère Falcon 50    | F50EX                  | Falcon 50EX (Honeywell TFE731)       |
| DASSAULT AVIATION | Falcon 7X            |                        | Falcon 7X (PWC PW307A)               |
|                   | Mystère Falcon 900   |                        | Falcon 900 (Honeywell TFE731)        |
|                   | Mystère Falcon 900   | F900B                  |                                      |
|                   | Mystère Falcon 900   | F900C                  | Falcon 900C (Honeywell TFE731)       |
|                   | Falcon 900EX         |                        | Falcon 900EX (Honeywell TFE731)      |
|                   | Falcon 900EX         | F900EX EASy            | Falcon 900EX EASy (Honeywell TFE731) |
|                   | Falcon 900EX         | F900DX                 |                                      |
|                   | Falcon 900EX         | F900LX                 |                                      |
| DORNIER Seastar   | Seastar CD2          |                        | Dornier Star CD2 (PWC PT6)           |
| EADS CASA         | C-212-CB             | Aviocar                | CASA C-212 (Honeywell TPE331)        |
|                   | C-212-CC             | Aviocar                |                                      |
|                   | C-212-CD             | Aviocar                |                                      |
|                   | C-212-CE             | Aviocar                |                                      |

| TC holder              | Model      | Commercial Designation | Part-66 Type rating endorsement       |
|------------------------|------------|------------------------|---------------------------------------|
|                        | C-212-CF   | Aviocar                |                                       |
|                        | C-212-DD   | Aviocar                |                                       |
|                        | C-212-DF   | Aviocar                |                                       |
|                        | C-212-EE   | Aviocar                |                                       |
|                        | C-212-VA   | Aviocar                |                                       |
|                        | C-212-DE   | Aviocar                | CASA C-212 (PWC PT6)                  |
|                        | CN-295     |                        | CASA C-295 (PWC PW127)                |
|                        | CN-235     |                        | CASA CN-235 (GE CT7)                  |
|                        | CN-235-100 |                        |                                       |
|                        | CN-235-200 |                        |                                       |
|                        | CN-235-300 |                        |                                       |
| ECLIPSE AEROSPACE Inc. | EA500      |                        | Eclipse EA500 (PWC PW610)             |
| EMBRAER                | EMB-110P1  | Bandeirante            | Embraer EMB-110 (PWC PT6)             |
|                        | EMB-110P1  | Bandeirante            |                                       |
|                        | EMB-121A   | Xingu I                | Embraer EMB-121 (PWC PT6)             |
|                        | EMB-121A1  | Xingu II               |                                       |
|                        | EMB-120    | Brasilia               | Embraer EMB-120 (PWC PW110 Series)    |
|                        | EMB-120ER  | Brasilia               |                                       |
|                        | EMB-120RT  | Brasilia               |                                       |
|                        | EMB-135BJ  | Legacy 600             | Embraer EMB-135/145 (RR Corp AE3007A) |
|                        | EMB-135ER  | Legacy 650             |                                       |
|                        | EMB-135LR  |                        |                                       |
|                        | EMB-145    |                        |                                       |
|                        | EMB-145EP  |                        |                                       |
|                        | EMB-145ER  |                        |                                       |
|                        | EMB-145EU  |                        |                                       |
|                        | EMB-145LR  |                        |                                       |

| TC holder                                  | Model           | Commercial Designation | Part-66 Type rating endorsement                      |
|--|-----------------|------------------------|--|
|  | EMB-145LU       |                        |  |
|  | EMB-145MK       |                        |  |
|  | EMB-145MP       |                        |  |
|  | EMB-500         | Phenom 100             | Embraer EMB-500 (PWC PW617)                          |
|  | EMB-505         | Phenom 300             | Embraer EMB-505 (PWC PW535)                          |
|  | ERJ 170-100 LR  | ERJ-170                | Embraer ERJ-170 Series (GE CF34)                     |
|  | ERJ 170-100 STD | ERJ-170                |  |
|  | ERJ 170-200 LR  | ERJ-175                |  |
|  | ERJ 170-200 STD | ERJ-175                |  |
|  | ERJ 190-100 ECJ | Lineage 1000           | Embraer ERJ-190 Series (GE CF34)                     |
|  | ERJ 190-100 IGW | ERJ-190 AR             |  |
|  | ERJ-190-100 LR  | ERJ-190                |  |
|  | ERJ 190-100 SR  | ERJ-190                |  |
|  | ERJ 190-100 STD | ERJ-190                |  |
|  | ERJ 190-200 IGW | ERJ-195 AR             |  |
|  | ERJ 190-200 LR  | ERJ-195                |  |
|  | ERJ 190-200 STD | ERJ-195                |  |
| MARYLAND AIR INDUSTRIES (FOKKER-FAIRCHILD) | F-27A to -M     |                        | Fokker F27 / Fairchild F-27/FH-227 Series (RRD Dart) |
|  | FH-227          |                        |  |
|  | FH-227B         |                        |  |
|  | FH-227C         |                        |  |
|  | FH-227D         |                        |  |
|  | FH-227E         |                        |  |
| FOKKER SERVICES                            | F27 Mark 100    | Friendship             |  |
|  | F27 Mark 200    | Friendship             |  |
|  | F27 Mark 300    | Friendship             |  |
|  | F27 Mark 400    | Friendship             |  |
|  | F27 Mark 500    | Friendship             |  |

| TC holder                            | Model            | Commercial Designation  | Part-66 Type rating endorsement       |
|--------------------------------------|------------------|-------------------------|---------------------------------------|
|                                      | F27 Mark 600     | Friendship              |                                       |
|                                      | F27 Mark 700     | Friendship              |                                       |
|                                      | F27 Mark 050     | Fokker 50               | Fokker 50/60 Series (PWC PW 125/127)  |
|                                      | F27 Mark 0502    | Fokker 50               |                                       |
|                                      | F27 Mark 0604    | Fokker 60               |                                       |
|                                      | F28 Mark 0070    | Fokker 70               | Fokker 70/100 Series (RRD Tay)        |
|                                      | F28 Mark 0100    | Fokker 100              |                                       |
|                                      | F28 Mark 1000    | Fellowship              | Fokker F28 Series (RRD Spey)          |
|                                      | F28 Mark 1000C   | Fellowship              |                                       |
|                                      | F28 Mark 2000    | Fellowship              |                                       |
|                                      | F28 Mark 3000    | Fellowship              |                                       |
|                                      | F28 Mark 3000C   | Fellowship              |                                       |
|                                      | F28 Mark 3000R   | Fellowship              |                                       |
|                                      | F28 Mark 3000RC  | Fellowship              |                                       |
|                                      | F28 Mark 4000    | Fellowship              | Fokker F28 Series (RRD Spey)          |
| GOMOLZIG                             |                  |                         | Domier Do 28 (Walter M601)            |
| GOVERNMENT AIRCRAFT FACTORIES (ASTA) | N22/N22A to N22S |                         | Nomad N22/24 Series (RR Corp 250)     |
|                                      | N24/N24A         |                         |                                       |
| GROB Luft- und Raumfahrt             |                  |                         | Grob G 520 Series (Honeywell TPE 331) |
| GULFSTREAM AEROSPACE Corporation     | G-1159           | Gulfstream II           | Gulfstream G-1159 Series (RRD Spey)   |
|                                      | G-1159A          | Gulfstream IIB          |                                       |
|                                      | G-1159B          | Gulfstream III          |                                       |
|                                      | G-159            | Gulfstream I            | Gulfstream G-159 (RRD Dart)           |
|                                      | GIV (G300)       | Gulfstream G300         | Gulfstream G-IV Series (RRD Tay)      |
|                                      | GIV (G400)       | Gulfstream G400         |                                       |
|                                      | G-IV/GIV-SP      | Gulfstream G-IV/ GIV-SP |                                       |

| TC holder   | Model                       | Commercial Designation | Part-66 Type rating endorsement                        |
|---|-----------------------------|------------------------|--|
|   | GIV-X (G350)                | Gulfstream G350        | Gulfstream GIV-X Series (RRD Tay)                      |
|   | GIV-X (G450)                | Gulfstream G450        |  |
|   | GV                          | Gulfstream GV          | Gulfstream GV basic model (RRD BR710)                  |
|   | GV-SP (G500)                | Gulfstream G500        | Gulfstream GV-SP Series (RRD BR710)                    |
|   | GV-SP (G550)                | Gulfstream G550        |  |
|   | GVI                         | G650                   | Gulfstream GVI (RRD BR725)                             |
| GULFSTREAM AEROSPACE LP (GALP) c/o Israel Aircraft Industries | 1125 Westwind Astra         |                        | Gulfstream (IAI) 100/1125/Astra SPX (Honeywell TFE731) |
|   | Astra SPX                   |                        |  |
|   | G100                        | Gulfstream 100         |  |
|   | Gulfstream 200 / IAI Galaxy | Gulfstream 200         | Gulfstream (IAI) 200/Galaxy (PWC PW306)                |
|   | Gulfstream G150             | Galaxy G150            | Gulfstream (IAI) G150 (Honeywell TFE731)               |
|   | Gulfstream G280             | Gulfstream G280        | Gulfstream (IAI) G280 (Honeywell AS907)                |
| BEECHCRAFT Corporation  | 65-90                       | King Air               | Beech 90 Series (PWC PT6)                              |
|   | 65-A90                      |                        |  |
|   | 65-A90-1                    |                        |  |
|   | 65-A90-2                    |                        |  |
| BEECHCRAFT Corporation  | 65-A90-4                    |                        |  |
|   | B90                         |                        |  |
|   | C90                         |                        |  |
|   | C90A                        |                        |  |
|   | C90GT                       |                        |  |

| TC holder | Model        | Commercial Designation | Part-66 Type rating endorsement       |
|-----------|--------------|------------------------|---------------------------------------|
|           | C90GTi       |                        |                                       |
|           | E90          |                        |                                       |
|           | F90          |                        |                                       |
|           | H90          |                        |                                       |
|           | 200/A200     |                        | Beech 200 Series (PWC PT6)            |
|           | 200C/A200C   |                        |                                       |
|           | 200CT/A200CT |                        |                                       |
|           | 200T         |                        |                                       |
|           | B200         |                        |                                       |
|           | B200C        |                        |                                       |
|           | B200CGT      |                        |                                       |
|           | B200CT       |                        |                                       |
|           | B200GT       |                        |                                       |
|           | B200T        |                        |                                       |
|           | 390          | Premier 1, 1A          | Beech 390 (Williams FJ44)             |
|           | 99           |                        | Beech 99/100 Series (PWC PT6)         |
|           | 100          | King Air               |                                       |
|           | 99A          |                        |                                       |
|           | A100         | King Air               |                                       |
|           | A100A/C      | King Air               |                                       |
|           | A99          | Airliner               |                                       |
|           | A99A         | Airliner               |                                       |
|           | B99          | Airliner               |                                       |
|           | C99          | Airliner               |                                       |
|           | B100         |                        | Beech B100 Series (Honeywell TPE 331) |
|           | 1900         | Airliner               | Beech 1900 (PWC PT6)                  |
|           | 1900C        | Airliner               |                                       |



| TC holder | Model             | Commercial Designation  | Part-66 Type rating endorsement          |
|-----------|-------------------|-------------------------|--|
|           | 1900D             | Airliner                | Beech 300 Series (PWC PT6)               |
|           | 300               | Super King Air          |  |
|           | 300LW             | Super King Air          |  |
|           | B300              | Super King Air 350      |  |
|           | B300C             | Super King Air 350C     |  |
|           | 400               | Beechjet                | Beech 400 / Mitsubishi MU-300 (PWC JT15) |
|           | 400A              | Beechjet (Hawker 400XP) |  |
|           | 400T              | Beechjet                |  |
|           | MU-300            | Diamond I/IA            |  |
|           | MU-300-10         | Diamond II              |  |
|           | BH.125 series 400 | "Beechcraft Hawker"     | BAe 125 Series (RR Viper)                |
|           | BH.125 series 600 | "Beechcraft Hawker"     |  |
|           | DH.125 series 1   | "Hawker Siddeley"       |  |
|           | DH.125 series 3   | "Hawker Siddeley"       |  |
|           | DH.125 series 400 | "Hawker Siddeley"       |  |
|           | HS.125 series 1   | "Hawker Siddeley"       |  |
|           | HS.125 series 3   | "Hawker Siddeley"       |  |
|           | HS.125 series 400 | "Hawker Siddeley"       |  |
|           | HS.125 series 600 | "Hawker Siddeley"       |  |

| TC holder              | Model                  | Commercial Designation | Part-66 Type rating endorsement           |
|------------------------|------------------------|------------------------|---|
|                        | HS.125 series F3       | "Hawker Siddeley"      |   |
|                        | HS.125 series F400     | "Hawker Siddeley"      |   |
|                        | HS.125 series F600     | "Hawker Siddeley"      |   |
| BEECHCRAFT Corporation | BAe.125 series 800     | "Beechcraft Hawker"    | BAe 125 Series/700/800 (Honeywell TFE731) |
|                        | BH.125 series 400      | "Beechcraft Hawker"    |   |
|                        | BH.125 series 600      | "Beechcraft Hawker"    |   |
|                        | DH.125 series 1        | "Hawker Siddeley"      |   |
|                        | DH.125 series 3        | "Hawker Siddeley"      |   |
|                        | DH.125 series 400      | "Hawker Siddeley"      |   |
|                        | Hawker 800             |                        |   |
|                        | HS.125 series 3        | "Hawker Siddeley"      |   |
|                        | HS.125 series 600      | "Hawker Siddeley"      |   |
|                        | HS.125 series 700      | "Hawker Siddeley"      |   |
|                        | HS.125 series F3       | "Hawker Siddeley"      |   |
|                        | HS.125 series F400     | "Hawker Siddeley"      |   |
|                        | HS.125 series F600     | "Hawker Siddeley"      |   |
|                        | BAe.125 series 1000A/B |                        | BAe 125 Series 1000 (PWC PW305)           |
|                        | Hawker 1000            |                        |   |

| TC holder                  | Model        | Commercial Designation | Part-66 Type rating endorsement                               |
|----------------------------|--------------|------------------------|---|
|                            | Hawker 750   | Hawker 750             | BAe 125 Series<br>750/800XP/850XP/900XP<br>(Honeywell TFE731) |
|                            | Hawker 800XP | Hawker 800XP           |   |
|                            | Hawker 850XP | Hawker 850XP           |   |
|                            | Hawker 900XP | Hawker 900XP           |   |
|                            | 4000         | Hawker 4000            | Hawker 4000 (PWC PW308)                                       |
| ISRAEL AIRCRAFT INDUSTRIES | IAI 1121     | Jetcommander           | IAI 1121/1123 (GE CJ610)F                                     |
|                            | IAI 1121A    | Jetcommander           |   |
|                            | IAI 1121B    | Jetcommander           |   |
|                            | IAI 1123     | Commodore Jet          |   |
|                            | IAI 1124     | Westwind               | IAI 1124 (Honeywell TFE731)                                   |
|                            | IAI 1124A    | Westwind               |   |
| JSC Sukhoi Civil Aircraft  | RRJ-95B      | Superjet 100           | RRJ-95 (PowerJet SaM146)                                      |
| KELOWNA<br>(Convair)       | 440          |                        | Convair 580 (RR Corp 501)                                     |
| LEARJET                    | LJ 23        |                        | Learjet 23 (GE CJ610)   |
|                            | 24 /24A      |                        | Learjet 24/25 (GE CJ610)                                      |
|                            | 24B / 24B-A  |                        |   |
|                            | 24C          |                        |   |
|                            | 24D / 24D-A  |                        |   |
|                            | 24E          |                        |   |
|                            | 24F / 24F-A  |                        |   |
|                            | 25           |                        |   |
|                            | 25A          |                        |   |

| TC holder                         | Model           | Commercial Designation | Part-66 Type rating endorsement           |
|-----------------------------------|-----------------|------------------------|---|
|                                   | 25B             |                        |   |
|                                   | 25C             |                        |   |
|                                   | 25D             |                        |   |
|                                   | 25F             |                        |   |
|                                   | 31 / 31A        |                        | Learjet 31 (Honeywell TFE731)             |
|                                   | 35 / 35A        |                        | Learjet 35/36 (Honeywell TFE731)          |
|                                   | 36 / 36A        |                        |   |
|                                   | 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/<br>LJ45XR        |   |
|                                   |                 |                        |   |
| LOCKHEED<br>MARTIN<br>Corporation | 1329-25         | JetStar II             | Lockheed 1329 (Honeywell TFE731)          |
|                                   | 1329-23D        | JetStar                | Lockheed 1329 PW (PW JT12)                |
|                                   | Model 188C      | Electra                | Lockheed 188 (RR Corp 501)                |
|                                   | Model L188A     | Electra                |   |
|                                   | 382G            | Hercules               | Lockheed 382 (RR Corp 501)                |
|                                   | L-1011-385-1    | TriStar                | Lockheed L-1011 (RR RB211)                |
|                                   | L-1011-385-1-15 | TriStar                |   |
|                                   | L-1011-385-3    | TriStar                |   |
| M7 AEROSPACE                      | SA-26-T         |                        | Fairchild SA26-T (PWC PT6)                |
|                                   | SA26AT          |                        | Fairchild SA26 AT (Honeywell TPE331)      |
|                                   | SA226-AT        |                        | Fairchild SA226 Series (Honeywell TPE331) |
|                                   | SA226-T         |                        |   |
|                                   | SA226-T(B)      |                        |   |
|                                   | SA226-TC        |                        |   |
|                                   |                 |                        |   |

| TC holder   | Model           | Commercial Designation | Part-66 Type rating endorsement           |
|---|-----------------|------------------------|---|
|   | SA227-AC        | Swearingen Metro       | Fairchild SA227 Series (Honeywell TPE331) |
|   | SA227-AT        |                        |   |
|   | SA227-BC        | Swearingen Metro       |   |
|   | SA227-CC        |                        |   |
|   | SA227-DC        |                        |   |
|   | SA227-TT        |                        |   |
|   | SA227-PC        | Swearingen Metro       | Fairchild SA227 Series (PWC PT6)          |
| McDONNELL<br>DOUGLAS<br>Corporation BOEING<br>COMPANY | DC-10-10        |                        | DC-10/MD-10 (GE CF6)                      |
|   | DC-10-30        |                        |   |
|   | DC-10-30F       |                        |   |
|   | DC-8 Series 70  |                        | DC-8 (CFM56)                              |
|   | DC-8 Series 70F |                        |   |
|   | DC-8 Series 50  |                        | DC-8 (PW JT3D)                            |
|   | DC-8 Series 60  |                        |   |
|   | DC-8 Series 60F |                        |   |
|   | DC-8F           |                        |   |
|   | DC-8 Series 40  |                        | DC-8 (RR Conway)                          |
|   | DC-9-10 Series  |                        | DC-9 (PW JT8D)                            |
|   | DC-9-20 Series  |                        |   |
|   | DC-9-30 Series  |                        |   |
|   | DC-9-40 Series  |                        |   |
|   | DC-9-50 Series  |                        |   |
|   | 717-200         |                        | MD 717-200 (RRD BR700-715)                |

| TC holder                      | Model                  | Commercial Designation | Part-66 Type rating endorsement            |
|--------------------------------|------------------------|------------------------|--|
|                                | MD-11                  |                        | MD-11 (GE CF6)                             |
|                                | MD-11F                 |                        |  |
|                                | MD-11                  |                        | MD-11 (PW 4000)                            |
|                                | DC-9-81 (MD-81) Series |                        | MD-80 Series (PW JT8D)                     |
|                                | DC-9-82 (MD-82) Series |                        |  |
|                                | DC-9-83 (MD-83) Series |                        |  |
|                                | DC-9-87 (MD-87) Series |                        |  |
|                                | MD-88                  |                        |  |
|                                | MD-90 Series           |                        | MD-90 (IAE V2500)                          |
| MITSUBISHI<br>Heavy Industries | MU-2B-26A              |                        | Mitsubishi MU-2B (Honeywell TPE331)        |
|                                | MU-2B-36A              |                        |  |
|                                | MU-2B-40               |                        |  |
|                                | MU-2B-60               |                        |  |
| PIAGGIO<br>Aero Industries     | P.166 DP1              |                        | Piaggio P166 (PWC PT6)                     |
|                                | P180                   | Avanti                 | Piaggio P180 Avanti/Avanti II<br>(PWC PT6) |
|                                | P180                   | Avanti II              |  |
| PILATUS AIRCRAFT               | PC-12                  |                        | Pilatus PC-12 (PWC PT6)                    |
|                                | PC-12/45               |                        |  |
|                                | PC-12/47               |                        |  |
|                                | PC-12/47E              |                        |  |
| PIPER AIRCRAFT                 | PA31T to T3            | Cheyenne               | Piper PA-31T (PWC PT6)                     |
|                                | PA-42-1000             | Cheyenne<br>400LS      | Piper PA-42 (Honeywell TPE-331)            |
|                                | PA-42                  | Cheyenne III           | Piper PA-42 (PWC PT6)                      |
|                                | PA-42-720              | Cheyenne IIIA          |  |

| TC holder   | Model          | Commercial Designation | Part-66 Type rating endorsement       |
|---|----------------|------------------------|---------------------------------------|
|   | PA-42-720R     |                        |                                       |
|   | PA-46-500TP    | Malibu<br>Meridian     | Piper PA-46-500TP (PWC PT6)           |
| POLSKIE ZAKLADY LOTNICZE  | PZL M28 00     |                        | PZL M 28 (PWC PT6)                    |
|   | PZL M28 02     |                        |                                       |
|   | PZL M28 05     |                        |                                       |
| REIMS AVIATION  | F 406          | Caravan II             | Reims-Cessna F 406 (PWC PT6)          |
| Antonov Aeronautical Scientific and Technical Complex (Aircraft with SAS) | Antonov An-28  |                        | Antonov An-28 (ТБД)                   |
| RUAG Aerospace Services GmbH  | DO 28 D-6      |                        | Dornier Do 28 Series (PWC PT6)        |
|   | Dornier 128-6  |                        |                                       |
|   | 228-100 series |                        | Dornier 228 (Honeywell TPE331)        |
|   | 228-200 series |                        |                                       |
| SAAB AB, SAAB Aerosystem  | 340A(SF340A)   | Saab –Fairchild 340A   | Saab (SF) 340 (GE CT7)                |
|   | 340B           |                        |                                       |
|   | 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  | SC7 Series 3   | Skyvan                 | Shorts SC7 (Honeywell TPE331)         |
|   | SD3-30         | Variant 200            | Shorts SD3 Series-30/SD3-60 (PWC PT6) |
|   | SD3-60         | Variant 200            |                                       |
|   | SD3-60 SHERPA  | Variant 200            |                                       |
|   | SD3-SHERPA     | Variant 200            |                                       |

| TC holder                                    | Model             | Commercial Designation | Part-66 Type rating endorsement                             |
|--|-------------------|------------------------|---|
| SOCATA                                       | TBM 700 A         | TBM 850                | Socata TBM 700/850 (PWC PT6)                                |
|  | TBM 700 B         |                        |   |
|  | TBM 700 C1        |                        |   |
|  | TBM 700 C2        |                        |   |
|  | TBM 700 N         |                        |   |
| TUPOLEV PSC                                  | TU 204-120CE      |                        | Tupolev TU 204 (RR RB211)                                   |
| TWIN COMMANDER<br>AIRCRAFT<br>Corporation    | 681               |                        | Twin Commander 680/681/690/695<br>Series (Honeywell TPE331) |
|  | 690               |                        |   |
|  | 695               |                        |   |
|  | 680-T             |                        |   |
|  | 680-V             |                        |   |
|  | 680-W             |                        |   |
|  | 690A              |                        |   |
|  | 690B              |                        |   |
|  | 690C              |                        |   |
|  | 690D              |                        |   |
|  | 695A              |                        |   |
|  | 695B              |                        |   |
| VIKING AIR<br>(Bombardier)<br>(De Havilland) | DHC-6-1           | Twin Otter             | De Havilland DHC-6 (PWC PT6)                                |
|  | DHC-6-100/110     |                        |   |
|  | DHC-6-200/210     |                        |   |
|  | DHC-6-300/310/320 |                        |   |
|  | DHC-6-400         |                        |   |
|  | DHC-7-100         |                        | De Havilland DHC-7 (PWC PT6)                                |
|  | DHC-7-101         |                        |   |



| TC holder | Model     | Commercial Designation | Part-66 Type rating endorsement       |
|-----------|-----------|------------------------|---------------------------------------|
|           | DHC-7-102 |                        |                                       |
|           | DHC-7-103 |                        |                                       |
|           | DHC-7-110 |                        |                                       |
|           | DHC-7-111 |                        |                                       |
| VULCAIR   | AP68TP300 | Spartacus              | Vulcanair AP68TP Series (RR Corp 250) |
|           | AP68TP600 | Viator                 |                                       |
|           | SF600     |                        | Vulcanair SF600 (RR Corp 250)         |
|           | SF600A    |                        |                                       |

**GROUP 1 HELICOPTERS**

| TC Holder       | Model            | Commercial Designation | Part-66 Type rating endorsement         |
|-----------------|------------------|------------------------|---|
| AGUSTA WESTLAND | A109E            |                        | Agusta A109 Series (PWC PW206/207)      |
|                 | A109N            |                        |   |
|                 | A109S            |                        |   |
|                 | AW109SP          |                        |   |
|                 | A109             |                        | Agusta A109 Series (RR Corp 250)        |
|                 | A109A            |                        |   |
|                 | A109AII          |                        |   |
|                 | A109C            |                        |   |
|                 | A109K2           |                        | Agusta A109 (Turbomeca Arriel 1)        |
|                 | A109E            |                        | Agusta A109 Series (Turbomeca Arrius 2) |
|                 | A109LUH          |                        |   |
|                 | AB139            |                        | Agusta AB139 / AW139 (PWC PT6)          |
|                 | AW139            |                        |   |
|                 | EH101-500 Series |                        | Agusta/Westland EH-101 (GE CT7)         |
|                 | EH101-510 Series |                        |   |
|                 | EH101-300        |                        |   |

| TC Holder                        | Model           | Commercial Designation | Part-66 Type rating endorsement                       |
|----------------------------------|-----------------|------------------------|---|
|                                  | AW169           |                        | AW169 (PWC 210)                                       |
|                                  | AW189           |                        | AW189 (GE CT7)  |
|                                  | AB 212          |                        | Bell 212 / Agusta AB212 (PWC PT6)                     |
| BELL HELICOPTER<br>TEXTRON, INC. | 212             |                        |   |
| AGUSTA                           | AB 204 B Series |                        | Agusta AB204, AB205 /Bell 204, 205<br>(Honeywell T53) |
|                                  | AB 205 A1       |                        |   |
| BELL HELICOPTER<br>TEXTRON, INC. | 204B            |                        |   |
|                                  | 205A-1          |                        |   |
|                                  | 412             |                        | Bell 412 / Agusta AB412 (PWC PT6)                     |
|                                  | 412EP           |                        |   |
|                                  | 412CF           |                        |   |
| AGUSTA                           | AB 412          |                        |   |
|                                  | AB 412 EP       |                        |   |
| BELL HELICOPTER<br>TEXTRON, INC. | 214B            |                        | Bell 214 (Honeywell T5508)                            |
|                                  | 214B-1          |                        |   |
|                                  | 214ST           |                        | Bell 214ST (GE CT7)                                   |
| BELL HELICOPTER<br>CANADA        | 222             |                        | Bell 222 (Honeywell LTS 101)                          |
|                                  | 222B            |                        |   |
|                                  | 222U            |                        |   |
|                                  | 230             | 230 Executive          | Bell 230 (RR Corp 250)                                |
|                                  | 230             | 230 Utility            |   |
|                                  | 230             | 230 EMS                |   |
|                                  | 427             |                        | Bell 427 (PWC PW207D)                                 |
|                                  | 429             |                        | Bell 429 (PWC PW207D)                                 |
|                                  | 430             |                        | Bell 430 (RR Corp 250)                                |
| ERICKSON AIR-<br>CRANE           | EAC S-64F       |                        | Erickson S-64 (PW JFTD 12)                            |

| TC Holder  | Model     | Commercial Designation | Part-66 Type rating endorsement                        |
|------------|-----------|------------------------|--|
| EUROCOPTER | SA 330 J  |                        | Eurocopter SA 330 (Turbomeca Turmo)                    |
|            | AS 332 C  |                        | Eurocopter AS 332 (Turbomeca Makila 1A/1A1)            |
|            | AS 332 L  |                        |  |
|            | AS 332 C1 |                        |  |
|            | AS 332 L1 |                        |  |
| EUROCOPTER | AS 332 L2 |                        | Eurocopter AS 332 L2 (Turbomeca Makila 1A2)            |
|            | AS 355 E  |                        | Eurocopter AS 355 (RR Corp 250)                        |
|            | AS 355 F  |                        |  |
|            | AS 355 F1 |                        |  |
|            | AS 355 F2 |                        |  |
|            | AS 355 N  |                        | Eurocopter AS 355 (Turbomeca Arrius 1)                 |
|            | AS 355 NP |                        |  |
|            | SA 365 N  |                        | Eurocopter SA 365 N/N1, AS 365 N2 (Turbomeca Arriel 1) |
|            | SA 365 N1 | Dauphin                |  |
|            | AS 365 N2 | Dauphin                |  |
|            | AS 365 N3 | Dauphin                | Eurocopter AS 365 N3 (Turbomeca Arriel 2C)             |
|            | EC 155 B  |                        | Eurocopter EC 155 (Turbomeca Arriel 2)                 |
|            | EC 155 B1 |                        |  |
|            | EC 175 B  |                        | Eurocopter EC 175 (PWC PT6C)                           |
|            | EC 225 LP |                        | Eurocopter EC 225 (Turbomeca Makila 2A)                |
|            | SA 365 C  | Dauphin                | Eurocopter SA 365 C Series (Turbomeca Arriel 1)        |
|            | SA 365 C1 |                        |  |
|            | SA 365 C2 |                        |  |
|            | SA 365 C3 |                        |  |
|            | SA 366 G1 | Dauphin                | Eurocopter SA 366 G1 Series (Lycoming LTS101)          |

| TC Holder                             | Model                    | Commercial Designation | Part-66 Type rating endorsement               |
|---------------------------------------|--------------------------|------------------------|---|
| Philippine Aerospace Development Corp | P-BO 105 C<br>P-BO 105 S |                        | BO 105 series (RR Corp 250)                   |
| EUROCOPTER<br>DEUTSCHLAND<br>GMBH     | BO 105 A                 |                        |   |
|                                       | BO 105 C                 |                        |   |
|                                       | BO 105 D Series          |                        |   |
|                                       | BO 105 LS A-1/           |                        |   |
|                                       | BO 105 LS A-3            |                        |   |
|                                       | BO 105 S                 |                        |   |
|                                       | EC 135 P1 Series         |                        | Eurocopter EC 135 (PWC PW206)                 |
|                                       | EC 135 P2 Series         |                        |   |
|                                       | EC 635 P2+               |                        |   |
|                                       | EC 135 T1 Series         |                        | Eurocopter EC 135 (Turbomeca Arrius 2B)       |
|                                       | EC 135 T2 Series         |                        |   |
|                                       | EC 635 T1                |                        |   |
|                                       | EC 635 T2 Series         |                        |   |
|                                       | MBB-BK 117 A Series      |                        | Eurocopter MBB-BK 117 A/B (Honeywell LTS 101) |
|                                       | MBB-BK 117 B Series      |                        |   |
|                                       | 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) |
|                                       | MBB-BK 117 D2            | EC145 T2               | Eurocopter MBB-BK 117 D2 (Turbomeca Arriel 2) |
| KAMAN AEROSPACE CORPORATION           | K-1200                   |                        | Kaman K-1200 (Honeywell T5317)                |

| TC Holder                  | Model         | Commercial Designation | Part-66 Type rating endorsement             |
|----------------------------|---------------|------------------------|---|
| KAMOV                      | Ka-32A11BC    |                        | Kamov Ka 32 (Klimov)                        |
| MD<br>HELICOPTERS,<br>INC. | MD900         |                        | MD Helicopters MD900 (PWC<br>PW206/207)     |
| PZL-ŚWIDNIK                | W-3A          |                        | PZL-Swidnik W-3A/W-3AS<br>(Rzeszow PZL-10W) |
|                            | W-3AS         |                        |   |
| AGUSTA                     | AS61N         |                        | Agusta AS61N/Sikorsky S-61N (GE<br>CT58)    |
|                            | AS61NI        |                        |   |
| SIKORSKY<br>AIRCRAFT       | S-61N         |                        |   |
|                            | S-61NM        |                        |   |
|                            | 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)          |
|                            | 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<br>(Turbomeca Arriel 2)      |
|                            | S-76C         | S-76C++                |   |
|                            | S-92A         |                        | Sikorsky S-92A (GE CT7-8)                   |

**SUB-GROUP 2a: SINGLE TURBO-PROPELLER ENGINE AEROPLANES**  
**(Other than those in Group 1)**

| <b>TC Holder</b>                              | <b>Part-66 Type rating endorsement</b>   |
|---|--|
| AERO VODOCHODY                                | Aero Ae-270 (PWC PT6)  |
| AIR TRACTOR                                   | Air Tractor AT-302 (Lycoming LTP-101)<br>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)<br>Cessna 208 Series (PWC PT6)<br>Cessna 210 (RR Corp 250)              |
| EADS PZL "WARSZAWA-OKECIE"                    | EADS PZL PZL-106 BT (Walter M601)<br>EADS PZL PZL-106 BTU (PWC PT6)  |
| EXTRA Flugzeugproduktions- und Vertriebs-GmbH | Extra EA-400-500 (RR Corp 250)   |
| GROB Aircraft AG                              | Grob G 120TP (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)<br>Pilatus PC-6 (PWC PT6)<br>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)   |

**SUB-GROUP 2b: SINGLE TURBO-PROPELLER ENGINE HELICOPTERS**  
**(Other than those in Group 1)**

| TC Holder                              | Model                  | Commercial Designation | Part-66 Type rating endorsement         |
|--|------------------------|------------------------|---|
| AGUSTA                                 | A119                   | Koala                  | Agusta A119/ Agusta AW119MkII (PWC PT6) |
|  | AW119 MkII             |                        |   |
| BELL HELICOPTER CANADA                 | 407                    |                        | Bell 407 (RR Corp 250)                  |
| AGUSTA                                 | AB 206A                |                        | Agusta AB206 / Bell 206 (RR Corp 250)   |
|  | AB 206B                |                        |   |
| BELL HELICOPTER TEXTRON CANADA LIMITED | 206 series from A to L |                        |   |
| THE ENSTROM HELICOPTER CORPORATION     | 480 / 480B             |                        | Enstrom 480 (RR Corp 250)               |
| EUROCOPTER                             | AS 350 B               | Écureuil               | Eurocopter AS 350 (Turbomeca Arriel 1)  |
|  | AS 350 B1              |                        |   |
|  | AS 350 B2              |                        |   |
|  | AS 350 BA              |                        |   |
|  | AS 350 BB              |                        |   |
|  | AS 350 B3              |                        | Eurocopter AS 350 (Turbomeca Arriel 2B) |
|  | 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 2)  |
|  | EC 130 T2              |                        |   |

| TC Holder                            | Model              | Commercial Designation | Part-66 Type rating endorsement                             |
|--------------------------------------|--------------------|------------------------|---|
|                                      | SA 315 B           | Lama                   | Eurocopter SA 315B<br>(Turbomeca Artouste)                  |
|                                      | SA 3180            | Alouette-<br>Astazou   | Eurocopter SA 318<br>(Turbomeca Astazou)                    |
|                                      | SA 318 B           |                        |   |
|                                      | SA 318 C           |                        |   |
|                                      | SA 319 B           | Alouette III           | Eurocopter SA 319<br>(Turbomeca Astazou XIV)                |
|                                      | SA 341 G           | Gazelle                | Eurocopter SA 341<br>(Turbomeca Astazou)                    |
|                                      | SA 342 J           | Gazelle                | Eurocopter SA 342 J<br>(Turbomeca Astazou XIV)              |
|                                      | SE 3160            | Alouette III           | Eurocopter SA 316 B/SA 316<br>C (Turbomeca Artouste)        |
|                                      | SA 316 B           |                        |   |
|                                      | SA 316 C           |                        |   |
| MD<br>HELICOPTERS<br>INC. (MDHI)     | 369 H series       |                        | MD Helicopters 369 Series /<br>SEI NH-500D (RR Corp<br>250) |
|                                      | 369 D, E<br>and FF |                        |   |
|                                      | NH-500D            |                        |   |
| MD<br>HELICOPTERS<br>INC. (MDHI)     | 500N               |                        | MD Helicopters 500N/600N<br>/AMD500N (RR Corp 250)          |
|                                      | 600N               |                        |   |
| Mecaer<br>Aviation Group             | AMD-500N           |                        |   |
| PZL-ŚWIDNIK                          | SW-4               |                        | PZL SW-4 (RR Corp 250)                                      |
| ROBINSON<br>HELICOPTER<br>COMPANY    | R66                |                        | Robinson R66 (RR Corp 250)                                  |
| SCHWEIZERAI<br>RCRAFT<br>CORPORATION | 269D               |                        | Schweizer 269D (RR Corp 250)                                |



**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<br>(Aircraft with SAS) | SH-4        |                        | Silvercraft SH-4 (Franklin)                |
| BRANTLY INTERNATIONAL, INC.                  | B-2         |                        | Brantly B2 (Lycoming)                      |
| HELICOPTÈRES GUIMBAL                         | G2          | Cabri                  | Cabri G2 (Lycoming)                        |
| THE ENSTROM HELICOPTER CORPORATION           | F-28 series |                        | Enstrom F-28/280 (Lycoming)                |
|  | 280 series  |                        |  |
| Mecaer Aviation Group                        | NH 300C     | Model 300C             | Schweizer / Breda Nardi 269/300 (Lycoming) |
| SCHWEIZER AIRCRAFT CORPORATION               | 269A        | Model 300C             |  |
|  | 269B        | Model 300C             |  |
|  | 269C        | Model 300C             |  |
|  | 269C-1      | Model 300C             |  |
| ROBINSON HELICOPTER COMPANY                  | R22         |                        | Robinson R22/R44 Series (Lycoming)         |
|  | R22 ALPHA   |                        |  |
|  | R22 BETA    |                        |  |
|  | R22 MARINER |                        |  |
|  | R44         |                        |  |
|  | R44 II      |                        |  |
| SIKORSKY AIRCRAFT                            | S-58 A to J |                        | Sikorsky S-58 (Wright Cyclone)             |

**GROUP 3: PISTON-ENGINE AEROPLANES (Other than those in Group 1)**

| <b>TC holder</b>                    | <b>Part- 66 Type rating endorsement</b>   | <b>Type of structure</b>      |
|-------------------------------------|---|-------------------------------|
| AERO Sp.z.o.o                       | Aero AT-3 (Rotax)                         | Metal                         |
| AEROSTAR<br>AIRCRAFT<br>Corporation | Piper PA-60/61 Series (Lycoming)          | Metal                         |
|                                     | Piper PA-60/61 Pressurised (Lycoming)     | Metal+<br>pressurised         |
| AIR TRACTOR                         | Air Tractor AT-250/300 (PW R985)          | Metal                         |
|                                     | Air Tractor AT-301/401/501 (PW R1340)     | Metal                         |
|                                     | Air Tractor AT-401 (PZL-3S)               | Metal                         |
| Air Transport Group Holdings, Inc   | Lake C/LA Series (Lycoming)               | Metal                         |
| AIRCRAFT Design and Certification   | (WD) D4 Fascination (Rotax)               | Composite                     |
| AIRCRAFT<br>INDUSTRIES              | Let L 200 (LOM)                           | Metal                         |
|                                     | Let Z-37 Series (LOM)                     | Metal tubing<br>Fabric        |
| ALENIA AERMACCHI                    | Aermacchi F260 Series (Lycoming)          | Metal                         |
|                                     | SIAl-Marchetti S.205 (Franklin)           | Metal                         |
|                                     | SIAl-Marchetti S.205/S.208 (Lycoming)     | Metal                         |
| ALEXANDRIA Aircraft LLC             | Bellanca 14-19 Series (Continental)       | Wood + Metal<br>tubing Fabric |
|                                     | Bellanca 17-30/17-31 Series (Continental) | Wood + Metal<br>tubing Fabric |
| ALLIED AG CAT<br>Productions        | Grumman G-164 (Continental)               | Metal                         |
|                                     | Grumman G-164 (Jacobs)                    | Metal                         |
|                                     | Grumman G-164 (PW R Series)               | Metal                         |
| ALPHA AVIATION                      | Robin HR 200/ R 2000 series (Lycoming)    | Metal                         |

| TC holder                           | Part- 66 Type rating endorsement         | Type of structure          |
|-------------------------------------|--|----------------------------|
| AMERICAN CHAMPION                   | Champion 7 (Superior)                    | Wood + Metal tubing Fabric |
|                                     | Champion 7 (Lycoming)                    | Wood + Metal tubing Fabric |
|                                     | Champion 8 Series (Lycoming)             | Wood + Metal tubing Fabric |
| AQUILA Aviation by Excellence AG    | Aquila AT01 (Rotax)                      | Composite                  |
| B-N GROUP Ltd.<br>(Britten- Norman) | Britten-Norman BN.2A Mark III (Lycoming) | Metal                      |
|                                     | Britten-Norman BN2A Series (Lycoming)    | Metal                      |
|                                     | Britten-Norman BN2B Series (Lycoming)    | Metal                      |
| CEAPR                               | Robin ATL / ATL S (JPX 4T60)             | Wood+ Composite            |
|                                     | Robin ATL L (Limbach L2000)              | Wood + Composite           |
|                                     | Robin DR 200 series (Potez)              | Wood                       |
|                                     | Robin DR 220 series (Continental)        | Wood                       |
|                                     | Robin DR 221 series (Lycoming)           | Wood                       |
|                                     | Robin DR 250 series (Lycoming)           | Wood                       |
|                                     | Robin DR 253 series (Lycoming)           | Wood                       |
|                                     | Robin DR 300 series (Lycoming)           | Wood                       |
|                                     | Robin DR 400 series (Lycoming)           | Wood                       |
|                                     | Robin DR 400 Series (Thielert)           | Wood                       |
|                                     | Robin DR 400 Series (Porsche)            | Wood                       |
|                                     | Robin HR 100 series (Continental)        | Metal                      |
|                                     | Robin HR 100 series (Lycoming)           | Metal                      |
|                                     | Robin R 1180 series (Lycoming)           | Metal                      |
|                                     | Robin R 3000 series (Lycoming)           | Metal                      |

| TC holder               | Part- 66 Type rating endorsement                  | Type of structure   |
|-------------------------|---|---------------------|
| CESSNA AIRCRAFT Company | Cessna 150 Series (Rotax)                         | Metal               |
|                         | Cessna 175 Series (Continental)                   | Metal               |
|                         | Cessna 175 Series (Lycoming)                      | Metal               |
|                         | Cessna 177 Series (Lycoming)                      | Metal               |
|                         | Cessna 180 Series (Continental)                   | Metal               |
|                         | Cessna 185 Series (Continental)                   | Metal               |
|                         | Cessna 188 (Continental)                          | Metal               |
|                         | Cessna 206 Series (Continental)                   | Metal               |
|                         | Cessna 206 Series (Lycoming)                      | Metal               |
|                         | Cessna 207 Series (Continental)                   | Metal               |
|                         | Cessna 210 Series (Continental)                   | Metal               |
| CESSNA AIRCRAFT Company | Cessna P210 (Continental)                         | Metal + Pressurised |
|                         | Cessna 310/320 Series (Continental)               | Metal               |
|                         | Cessna 335 (Continental)                          | Metal + Pressurised |
|                         | Cessna 336 (Continental)                          | Metal               |
|                         | Cessna 340 (Continental)                          | Metal + Pressurised |
|                         | Cessna T303 (Continental)                         | Metal               |
|                         | Cessna/Reims-Cessna 150/F150 Series (Continental) | Metal               |
|                         | Cessna/Reims-Cessna 152/F152 Series (Lycoming)    | Metal               |
|                         | Cessna/Reims-Cessna 172/F172 Series (Continental) | Metal               |
|                         | Cessna/Reims-Cessna 172/F172 Series (Lycoming)    | Metal               |
|                         | Cessna/Reims-Cessna 182/F182 Series (Continental) | Metal               |
|                         | Cessna/Reims-Cessna 182/F182 Series (Lycoming)    | Metal               |
|                         | Cessna/Reims-Cessna 182/F182 Series (SMA)         | Metal               |

| TC holder                                | Part- 66 Type rating endorsement                               | Type of structure   |
|--|--|---------------------|
|  | Cessna/Reims-Cessna 337 Series (Continental) (not pressurised) | Metal               |
|  | Cessna/Reims-Cessna 337 Series (Continental) (pressurised)     | Metal + Pressurised |
|  | Cessna C300/C350/C400 (Continental)                            | Composite           |
| CIRRUS Design Corporation                | Cirrus SR20/SR22/SR22T Series (Continental)                    | Composite           |
|  | Cirrus SR22 Series (Thielert)                                  | Composite           |
| COMMANDER PREMIER AIRCRAFT CO.           | Commander 112 (Lycoming)                                       | Metal               |
|  | Commander 114 (Lycoming)                                       | Metal               |
| Czech Sport Aircraft a.s.                | Czech Sport PS-28 (Rotax)                                      | Metal               |
| DE HAVILLAND Support (Aircraft with SAS) | Beagle B.121 series 1 (Continental)                            | Metal               |
|  | Beagle B.121 series 2/3 (Lycoming)                             | Metal               |
| DIAMOND AIRCRAFT Industries              | Diamond DA20 (Continental)                                     | Composite           |
|  | Diamond DA20/DV20 (Rotax)                                      | Composite           |
|  | Diamond DA40 (Austro Engine)                                   | Composite           |
|  | Diamond DA40 (Lycoming)  | Composite           |
|  | Diamond DA40 D (Thielert)                                      | Composite           |
|  | Diamond DA42 Series (Austro Engine)                            | Composite           |
|  | Diamond DA42 Series (Thielert)                                 | Composite           |
| DYNAC AEROSPACE Corporation              | Aerocommander 100 (Lycoming)                                   | Metal               |
| Dyn'aviation                             | CAP 10 (Lycoming)  | Wood                |
|  | CAP 20/21 (Lycoming)   | Wood                |
|  | CAP 230 Series (Lycoming)                                      | Composite + Wood    |
| EADS Deutschland Military Air Syst       | Bölkow BO 208 (Continental)                                    | Metal               |
|  | Bölkow BO 209 (Lycoming)                                       | Metal               |
|  | Bölkow F.207 (Continental)                                     | Wood + Composite    |
|  | Bölkow F.207 (Lycoming)  | Wood +Composite     |
|  | SIAT 223 (Lycoming)  | Metal               |

| TC holder   | Part- 66 Type rating endorsement   | Type of structure          |
|---|------------------------------------|----------------------------|
| EADS PZL<br>"WARSZAWA-<br>OKECIE"                               | PZL-104 Wilga (Lycoming)           | Metal                      |
|   | PZL-104 Wilga Series (PZL)         | Metal                      |
|   | PZL-104A Wilga (Ivchenko)          | Metal                      |
|   | PZL-110 Koliber (Franklin)         | Metal                      |
|   | PZL-Koliber 150 Series (Lycoming)  | Metal                      |
|   | PZL-Koliber 160 (Lycoming)         | Metal                      |
| EADS PZL "WARSZAWA<br>-OKECIE" (Aircraft with<br>SAS)           | PZL-106 Series (PZL)               | Metal                      |
| EIS GmbH  | RS 180 (Lycoming)                  | Wood                       |
| EVEKTOR   | Evektor EV-97 (Rotax)              | Metal                      |
|   | SportStar RTC (Rotax)              | Metal                      |
| EXTRA<br>Flugzeugproduktions-<br>und Vertriebs-GmbH             | Extra EA-200/300 Series (Lycoming) | Composite                  |
|   | Extra EA-400 (Continental)         | Composite +<br>Pressurised |
| FFA ALTENRHEIN  | AS202 Series (Lycoming)            | Metal                      |
| FFT GYROFLUG<br>(Aircraft with SAS)                             | SC01 Series (Lycoming)             | Composite                  |
| Flight Design GmbH  | CTLS ELA (Rotax)                   | Composite                  |
| FLS AEROSPACE<br>(Aircraft with SAS)                            | Club Sprint/Sprint 160 (Lycoming)  | Metal                      |
|   | OA7 Optica Series (Lycoming)       | Metal                      |
| Fournier, René  | RF 47 (Limbach)                    | Wood                       |
|   | RF 6B (Continental)                | Wood                       |
|   | RF 6B (Lycoming)                   | Wood                       |
| FUJI Heavy Industries   | Fuji FA-200 Series (Lycoming)      | Metal                      |
| GA8 Airvan Pty Ltd  | Gippsland GA8 (Lycoming)           | Metal                      |
| GARDAN (Aircraft with<br>SAS)                                   | Gardan GY 80 (Lycoming)            | Metal                      |
| GENERAL AVIA<br>Costruzioni Aeronautiche<br>(Aircraft with SAS) | General Avia F.22 (Lycoming)       | Metal                      |
|   | General Avia F20 Series (Lycoming) | Metal                      |

| TC holder                        | Part- 66 Type rating endorsement           | Type of structure   |
|----------------------------------|--|---------------------|
| GOMOLZIG                         | Ruschmeyer R90-230RG (Lycoming)            | Composite           |
| GROB Luft- und Raumfahrt         | Grob G115/120 Series (Lycoming)            | Composite           |
| BEEHCRAFT Corporation            | Beech 23 Series (Lycoming)                 | Metal               |
|                                  | Beech 24 Series (Lycoming)                 | Metal               |
|                                  | Beech 33 Series (Continental)              | Metal               |
|                                  | Beech 35 Series (Continental)              | Metal               |
|                                  | Beech 36 Series (Continental)              | Metal               |
|                                  | Beech 50 Series (Lycoming)                 | Metal               |
|                                  | Beech 55 Series (Continental)              | Metal               |
|                                  | Beech 56 Series (Lycoming)                 | Metal               |
|                                  | Beech 58 Series (Continental)              | Metal               |
|                                  | Beech 58P (Continental)                    | Metal + Pressurised |
|                                  | Beech 58TC (Continental)                   | Metal               |
|                                  | Beech 60 Series (Lycoming)                 | Metal               |
|                                  | Beech 65-80 Series (Lycoming)              | Metal               |
|                                  | Beech 76 (Lycoming)                        | Metal               |
|                                  | Beech 77 (Lycoming)                        | Metal               |
|                                  | Beech 95 Series (Lycoming)                 | Metal               |
|                                  | Beech A23 (Continental)                    | Metal               |
| Hoffmann GmbH & Co.KG            | H 40 (Lycoming)                            | Composite           |
| INIZIATIVE INDUSTRIALI ITALIANE  | III Sky Arrow 650/710 (Rotax)              | Composite           |
| INSTYTUT LOTNICTWA               | Instytut Lotnictwa I-23 Manager (Lycoming) | Composite           |
| INTERCEPTOR AIRCRAFT Corporation | Aerocommander 200 (Continental)            | Metal               |

| TC holder                      | Part- 66 Type rating endorsement   | Type of structure          |
|--------------------------------|------------------------------------|----------------------------|
| ISSOIRE AVIATION               | Issoire APM 20/30 (Rotax)          | Composite                  |
|                                | Issoire APM 40 (Continental)       | Composite                  |
| LAVIA ARGENTINA S.A. (LAVIASA) | Piper PA-25 Series (Lycoming)      | Metal                      |
| LIBERTY AEROSPACE Incorporated | Liberty XL-2 (Continental)         | Composite                  |
| MAULE AEROSPACE TECHNOLOGY     | Maule M4 (Continental)             | Metal                      |
|                                | Maule M4 (Franklin)                | Metal                      |
|                                | Maule M5 (Continental)             | Metal                      |
|                                | Maule M5 (Franklin)                | Metal                      |
|                                | Maule M5 (Lycoming)                | Metal                      |
|                                | Maule M6 (Lycoming)                | Metal                      |
|                                | Maule M7 Series (Lycoming)         | Metal                      |
|                                | Maule MX-7 (Lycoming)              | Metal                      |
| MOONEY AIRPLANE Company        | Mooney M18L (Continental)          | Metal + Wood               |
|                                | Mooney M20 (Continental)           | Metal                      |
|                                | Mooney M20/M20A (Lycoming)         | Metal + Wood               |
|                                | Mooney M20B to M20S/M22 (Lycoming) | Metal                      |
| NIPPER                         | Nipper T-66 (Stark)                | Wood + Metal tubing Fabric |
| OMA SUD SPA Sky Technologies   | SKYCAR (Lycoming)                  | Metal                      |
| PIAGGIO Aero Industries        | Piaggio P166 (Lycoming)            | Metal                      |
| PILATUS AIRCRAFT               | Pilatus PC-6 Series (Lycoming)     | Metal                      |
| PIPER AIRCRAFT                 | Piper PA-23 Aztec (Lycoming)       | Metal                      |
|                                | Piper PA-24 Series (Lycoming)      | Metal                      |
|                                | Piper PA-28 Series (Continental)   | Metal                      |
|                                | Piper PA-28 Series (Lycoming)      | Metal                      |
|                                | Piper PA-28 Series (Thielert)      | Metal                      |



| TC holder  | Part- 66 Type rating endorsement   | Type of structure          |
|--|------------------------------------|----------------------------|
|  | Piper PA-30 Series (Lycoming)      | Metal                      |
|  | Piper PA-31 Series (Lycoming)      | Metal                      |
|  | Piper PA-31P (Lycoming)            | Metal + Pressurised        |
|  | Piper PA-32 Series (Lycoming)      | Metal                      |
|  | Piper PA-34 Series (Continental)   | Metal                      |
|  | Piper PA-34 Series (Lycoming)      | Metal                      |
|  | Piper PA-36 Series (Continental)   | Metal                      |
|  | Piper PA-36 Series (Lycoming)      | Metal                      |
|  | Piper PA-38 Series (Lycoming)      | Metal                      |
|  | Piper PA-39/40 Series (Lycoming)   | Metal                      |
|  | Piper PA-44 Series (Lycoming)      | Metal                      |
|  | Piper PA-46 Series (Continental)   | Metal                      |
|  | Piper PA-46 Pressurised (Lycoming) | Metal + Pressurised        |
| Polskie Zakłady Lotnicze Sp. Z o. o.                   | PZL M 18 (PZL)                     | Metal                      |
|  | PZL M 26 (Lycoming)                | Metal                      |
| Polskie Zakłady Lotnicze Sp. z o.o (Aircraft with SAS) | PZL-M20 (PZL)                      | Metal                      |
| PZL MIELEC   | PZL-M20 (PZL)                      | Metal                      |
| REGAL AIR, INC   | REGAL AIR 305 Series (Continental) | Metal                      |
| REVO, Inc  | REVO C/LA-4 Series (Lycoming)      | Metal                      |
| RUAG AEROSPACE Services GmbH                           | Do 28 Series (Lycoming)            | Metal                      |
| S.C.Constructii Aeronautice S.A                        | IAR-46 (Rotax)                     | Metal                      |
| SCHEIBE Flugzeugbau                                    | SF 23 Series (Continental)         | Wood + Metal tubing Fabric |
| SCHEIBE Flugzeugbau (Aircraft with SAS)                | SF 23 Series (Lycoming)            | Wood + Metal tubing Fabric |

| TC holder                            | Part- 66 Type rating endorsement               | Type of structure          |
|--------------------------------------|--|----------------------------|
| SEASTAR CORP                         | TSC Series (Lycoming)                          | Composite                  |
| SKY INTERNATIONAL                    | Aviat HuskyA (Lycoming)                        | Metal                      |
|                                      | Pitts S-1 Series (Lycoming)                    | Wood+ Metal tubing Fabric  |
|                                      | Pitts S-2 Series (Lycoming)                    | Wood + Metal tubing Fabric |
| Skyfox Aviation Ltd                  | CA25 Series (Rotax)                            | Wood + Metal tubing Fabric |
| SLINGSBY Aviation                    | Slingsby T67 (Lycoming)                        | Wood + Metal tubing Fabric |
|                                      | Slingsby T67A/T67B/T67C/T67M Series (Lycoming) | Composite                  |
| SOCATA                               | Grumman GA-7 (Lycoming)                        | Metal                      |
|                                      | SOCATA MS 881 (Potez)                          | Metal                      |
|                                      | SOCATA MS 884/894/PZL Koliber (Franklin)       | Metal                      |
|                                      | SOCATA Rallye Series (Continental)             | Metal                      |
|                                      | SOCATA Rallye Series (Lycoming)                | Metal                      |
|                                      | SOCATA TB Series (Lycoming)                    | Metal + Pressurised        |
| SOCATA (Aircraft with SAS)           | SOCATA ST10 (Lycoming)                         | Metal                      |
| Sportavia Putzer (Aircraft with SAS) | Sportavia Putzer RS180 (Lycoming)              | Wood + Composite           |
| STOL AIRCRAFT Corporation            | Republic UC-1 (Lycoming)                       | Metal                      |
| SUKHOI                               | Sukhoi Su-29/31 (MGA)                          | Composite                  |
| SUKHOI (Aircraft with SAS)           | Sukhoi SU-29 (Vedeneyev)                       | Composite                  |
|                                      | Sukhoi SU-31 (Vedeneyev)                       | Composite                  |
| NAFTAA                               | Symphony OMF-100-160 (Lycoming)                | Metal                      |

| TC holder                                 | Part- 66 Type rating endorsement              | Type of structure             |
|---|---|-------------------------------|
| TAYLORCRAFT<br>2000                       | Taylorcraft 19 Series (Continental)           | Wood + Metal<br>tubing Fabric |
|   | Taylorcraft F21/F22 Series<br>(Lycoming)      | Wood + Metal<br>tubing Fabric |
| TECNAM Costruzioni<br>Aeronautiche        | Tecnam P2006T (Rotax)                         | Metal                         |
|   | Tecnam P92 (Rotax)                            | Metal                         |
|   | Tecnam P96/P2002/P2004 (Rotax)                | Metal                         |
| THRUSH Aircraft                           | Ayres S2R (PW R-985)                          | Metal                         |
| TRUE FLIGHT<br>Holdings                   | Grumman/American AA-1 Series<br>(Lycoming)    | Metal                         |
|   | Grumman/American AA-5 Series<br>(Lycoming)    | Metal                         |
| TWIN COMMANDER<br>AIRCRAFT<br>Corporation | Commander 500 Series/680 Series<br>(Lycoming) | Metal                         |
|   | Commander 680P (Lycoming)                     | Metal + Pressurised           |
|   | Commander 685 (Continental)                   | Metal + Pressurised           |
|   | Rockwell 700 (Lycoming)                       | Metal + Pressurised           |
|   | Commander 720 (Lycoming)                      | Metal + Pressurised           |
| PARTENAVIA<br>(Aircraft with SAS)         | Partenavia P.64 (Lycoming)                    | Metal                         |
|   | Partenavia P.66 (Lycoming)                    | Metal                         |
| VULCANAIR                                 | Partenavia P57 (Lycoming)                     | Wood + Metal<br>tubing Fabric |
|   | Vulcanair F600A (Lycoming)                    | Metal                         |
|   | Vulcanair P.68 Series (Lycoming)              | Metal                         |
| WACO Aircraft<br>Company                  | Waco YMF (Jacobs)                             | Wood + Metal<br>tubing Fabric |
| WACO Classic<br>Aircraft Corp             | Waco 2T Series (Lycoming)                     | Wood + Metal<br>tubing Fabric |
| WASSMER<br>(Aircraft with SAS)            | CERVA CE43 (Lycoming)                         | Metal                         |
|   | CERVA CE44 (Continental)                      | Metal                         |

| TC holder                              | Part- 66 Type rating endorsement        | Type of structure          |
|--|---|----------------------------|
|  | WA4/21 Series (Lycoming)                | Wood + Metal tubing Fabric |
|  | WA40 Series (Lycoming)                  | Wood + Metal tubing Fabric |
|  | WA41 (Lycoming)                         | Wood + Metal tubing Fabric |
| XtremeAir GmbH                         | XtremeAir XA42 (Lycoming)               | Composite                  |
| YAKOVLEV<br>(Aircraft with SAS)        | Yakovlev YAK-18T (Vedeneyev)            | Metal                      |
| ZAKŁADY<br>LOTNICZE                    | EM-11 (Lycoming)                        | Composite                  |
| ZLIN AIRCRAFT<br>(MORAVAN<br>AVIATION) | Zlin Z-143 L (Lycoming)                 | Metal                      |
|  | Zlin Z-242 L (Lycoming)                 | Metal                      |
|  | Zlin Z-26 Series (Walter<br>Minor/AVIA) | Metal                      |
|  | Zlin Z-42 Series (LOM)                  | Metal                      |
|  | Zlin Z-43 Series (LOM)                  | Metal                      |
|  | Zlin Z-50 Series (LOM)                  | Metal                      |
|  | Zlin Z-50L Series (Lycoming)            | Metal                      |
|  | Zlin Z-526 L (Lycoming)                 | Metal                      |

## Appendix II

### Aircraft Type Practical Experience and On-the-Job Training 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.

Park, secure and cover aircraft.

Position aircraft in 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/water system Perform

pre-flight/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.

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 co-axial cable. Troubleshoot faulty system.

**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. 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.  
 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.  
 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. 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. 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.  
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.

**Airborne Auxiliary power**

Install APU. Inspect hot section.  
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.  
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. 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. 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/boroscope check. Carry out engine/compressor wash.

Carry out engine dry cycle.

Engine ground run.

Establish reference power.

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**

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.  
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. 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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### Appendix III

#### **Evaluation of the competence: Assessment and assessors**

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 to have 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 such as, but not limited to:

- Environment 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 in order 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 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 (re-orientate 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, 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 to 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.