

STATE OF LIBYA
MINISTRY OF TRANSPORT
CIVIL AVIATION AUTHORITY



دولة ليبيا
وزارة المواصلات
مصلحة الطيران المدني

LYCAR Part-66

Libyan Civil Aviation Regulation Part 66 - Aircraft Maintenance Engineer License

Second issue, May 2023

Approved by and published under the authority of the Director General of LYCAA.

Issue date : May 2023

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RECORD OF REVISIONS

No.	Date	Description / Highlights
Issue 1	August 2016	Initial issue
Issue 2	May 2023	<ul style="list-style-type: none">- Completing missing parts- Adding Section B: Authority requirements- Integrating AMCs & GMs- Applying e-regulation linking

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FOREWORD

1. The regulation contained herein is adopted under the provision of Article N5 of Libyan Civil Aviation Law N6 of 2005 and issued and signed up by the Director General of Libyan Civil Aviation by virtue of powers vested from the Minister of Transport under the resolution N154 issued on 13.05.2015.
2. The Libyan Civil Aviation Regulation of Continuing Airworthiness establishes technical requirements and administrative procedures to ensure the continuing airworthiness of aircraft, components, parts and appliances as well as the approval of organizations and personnel involved in these tasks.
3. This regulation is in compliance with ICAO Annexes and SARPs and it has also adapted regulation, associated compliance or interpretative material issued by EASA as Acceptable Means of Compliance (AMCs) and Guidance Materials (GMs) whenever possible.
4. The information contained herein is subject to constant review in the light of changing regulations and requirements. No subscriber or other reader should act on the basis of any such information without taking appropriate professional advice when/as indicated/required. Although, every effort has been made to ensure accuracy, the Libyan Civil Aviation Authority (LYCAA) shall not be held responsible for loss or damage caused by errors, omissions, misprints or misinterpretation of the content hereof.
5. The use of the male gender implies the female gender and vice versa.
6. Copies of this regulation can be obtained from the Safety Department of the LYCAA or can be downloaded on the official website: www.caa.gov.ly
7. Transition Period: The Libyan civil aviation industry is required to meet the compliancy requirements of this regulation within three months after its official publication. All new applications, after the publication of this regulation, will meet the requirements of this issue of regulation.

Dr. Mohamed Shlibek
Director General of LYCAA
31st of May 2023

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Definitions

(a) A complex motor-powered aircraft means:

(1) An airplane

- (i) Above 5700 Kg MTOM, or
- (ii) Certificated for more than 19 seated passengers, or
- (iii) Certificated for operation with at least 2 pilots, or
- (iv) Equipped with turbojet engine(s) or more than 1 turboprop engine.

(2) A helicopter

- (i) Above 3175 Kg MTOM, or
- (ii) Certificated for more than 9 seated passengers, or
- (iii) Certificated for operation with at least 2 pilots, or

(3) A tilt rotor aircraft.

(b) For the purpose of LYCAR, Category 1 “Light Aircraft” (LA1) means the following aircrafts:

- i. an airplane, sailplane or powered sailplane with a Maximum Take-off Mass (MTOM) less than 1000 kg that is not classified as complex motor-powered aircraft;
- ii. a balloon with a maximum design lifting gas or hot air volume of not more than 3400 m³ for hot air balloons, 1050 m³ for gas balloons, 300 m³ for tethered gas balloons;
- iii. an airship designed for not more than two occupants and a maximum design lifting gas or hot air volume of not more than 2500 m³ for hot air airships and 1000 m³ for gas airships.

(c) For the purpose of LYCAR, Category 2 “Light Aircraft” (LA2) means the following aircraft:

- i. an airplane with a Maximum Take-off Mass (MTOM) of 2 000 kg or less that is not classified as complex motor-powered aircraft;
- ii. a sailplane or powered sailplane of 2.000 kg MTOM or less;
- iii. a balloon;
- iv. a hot air ship;
- v. a gas airship complying with all of the following characteristics:
 - 3 % maximum static heaviness,
 - non-vectorred thrust (except reverse thrust),
 - conventional and simple design of structure, control system and ballonet system, and
 - non-power assisted controls;
- vi. a very Light Rotorcraft.

(d) For the purpose of LYCAR, 'LSA aircraft' means a light sport airplane which has all of the following characteristics:

- i. a Maximum Take-off Mass (MTOM) of not more than 600 kg;
- ii. a maximum stalling speed in the landing configuration (VS0) of not more than 45 knots Calibrated Airspeed (CAS) at the aircraft's maximum certificated take-off mass and most critical center of gravity;
- iii. a maximum seating capacity of no more than two persons, including the pilot;
- iv. a single, non-turbine engine fitted with a propeller;
- v. a non-pressurized cabin;

'Certifying staff' means personnel responsible for the release of an aircraft or a component after maintenance;

'Commercial specialized operations' means those operations subject to the requirements of in LYCAR-OPS;

'Component' means any engine, propeller, part or appliance;

'Critical maintenance task' means a maintenance task that involves the assembly or any disturbance of a system or any part on an aircraft, engine or propeller that, if an error occurred during its performance, could directly endanger the flight safety;

'Large Aircraft' means an aircraft, classified as an airplane with a maximum takeoff mass of more than 5700 kg, or a multi-engined helicopter.

'Limited operations' means the operations of other-than-complex motor-powered aircraft for:

(a) cost-shared flights by private individuals, on the condition that the direct cost is shared by all the occupants of the aircraft, pilot included and the number of persons sharing the direct costs is limited to six;

(b) competition flights or flying displays, on the condition that the remuneration or any valuable consideration given for such flights is limited to recovery of direct costs and a proportionate contribution to annual costs, as well as prizes of no more than a value specified by LYCAA;

(c) introductory flights, parachute dropping, sailplane towing or aerobatic flights performed either by an approved training organization having its principal place of business in Libya, or by an organization created with the aim of promoting aerial sport or leisure aviation, on the condition that the aircraft is operated by the organization on the basis of ownership or dry lease, that the flight does not generate profits distributed outside of the organization, and that whenever non-members of the organization are involved, such flights represent only a marginal activity of the organization;

For the purpose of LYCAR, "limited operations" are not considered as CAT operations or commercial specialized operations;

‘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;

‘Organization’ means a natural person, a legal person or part of a legal person.

‘Pre-flight inspection’ means the inspection carried out before flight to ensure that the aircraft is fit for the intended flight;

‘Principal place of business’ means the head office or the registered office of the undertaking within which the principal financial functions and operational control of the activities referred to in this Regulation are exercised.

SECTION A: TECHNICAL REQUIREMENTS

66.A.1 Scope

This section defines the Aircraft Maintenance Engineer License (AMEL) and establishes the requirements for application, issue and continuation of its validity.

66.A.3 License categories and subcategories

Aircraft maintenance licenses include the following categories and subcategories:

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

- (1) A1 Airplanes Turbine;
- (2) A2 Airplanes Piston;
- (3) A3 Helicopters Turbine;
- (4) A4 Helicopters Piston.

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

- (1) B1.1 Airplanes Turbine;
- (2) B1.2 Airplanes Piston;
- (3) B1.3 Helicopters Turbine;
- (4) B1.4 Helicopters Piston.

(c) Category B2

The B2 license is applicable to all aircrafts.

(d) Category B3

The B3 license is applicable to piston-engine non-pressurized airplanes of 2.000 kg Maximum Take-off Mass (MTOM) and below.

(e) Category C

The C license is applicable to all airplanes and helicopters.

66.A.5 Aircraft groups

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

- (1) **Group 1:** complex motor-powered aircraft, helicopters with multiple engines, airplanes 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 LYCAA.

- (2) **Group 2:** aircraft other than those in Group 1 belonging to the following subgroups:
- (i) sub-group 2a: single turbo-propeller engine airplanes
 - (ii) sub-group 2b: single turbine engine helicopters
 - (iii) sub-group 2c: single piston engine helicopters.
- (3) **Group 3:** piston engine airplanes other than those in Group 1.

66.A.10 Application

- (a) An application for an aircraft maintenance engineer license or change to such license shall be made in a manner established by the LYCAA and submitted with necessary documents.
- (b) In addition to the documents required in points 66.A.10 (a) and [66.B.100](#), as appropriate, the applicant for additional basic categories or subcategories to an aircraft maintenance engineer license shall submit his/her current original aircraft maintenance engineer license to the LYCAA together with the application Form.
- (c) Applicant who meets the appropriate requirement of this Part shall pay all fees prescribed by the authority
- (d) 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 TO 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. It is acceptable to cross refer in the application Form to other documents containing information on maintenance.
2. Applicants claiming the maximum reduction in [66.A.30\(a\)](#) total experience based upon having successfully completed Part-147 approved basic training should include the Part-147 certificate of recognition for approved basic training.
3. Applicants claiming reduction in [66.A.30\(a\)](#) total experience based upon having successfully completed technical training in an organization or institute recognized by the competent authority as a competent organization or institute, should include the relevant certificate of successful completion of training.

66.A.15 Eligibility

An applicant for an Aircraft Maintenance Engineer License (AMEL) shall:

1. be at least 21 years of age, and;
2. not have any disability, which will affect technical skill or judgment in performing the work, and;
3. has obtained a certificate of education in scientific or technical subjects which qualifies her/him for university or higher technology institutes, and;
4. should meet one of the following criteria:
 - (i) a Libyan national, or;
 - (ii) a legal employee of Libyan approved organization with proper justification for a need to hold an LYCAA aircraft maintenance engineer license, or;
 - (iii) a graduate of an LYCAA approved Part-147 basic aircraft maintenance training organization.

66.A.20 Privileges

(a) The following privileges of the holder of an aircraft maintenance license shall apply:

1. A category A aircraft maintenance engineer license 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 Part-145. The certification privileges shall be restricted to work that the license holder has personally performed in the maintenance organization that issued the certification authorization.
2. A category B1 aircraft maintenance engineer license shall permit the holder to issue certificates of release to service and to act as B1 support staff following:
 - (i) Maintenance performed on aircraft structure, powerplant and mechanical and electrical systems,
 - (ii) work on avionic systems requiring only simple tests to prove their serviceability and not requiring troubleshooting.

Category B1 includes the corresponding A sub category.

3. A category B2 aircraft maintenance engineer license 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,
- (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 authorization referred to in point Part-145. This certification privilege shall be restricted to work that the license holder has personally performed in the maintenance organization which issued the certification authorization and limited to the ratings already endorsed in the B2 license.

The category B2 license does not include any A subcategory.

4. A category B3 aircraft maintenance license shall permit the holder to issue certificates of release to service and to act as B3 support staff for:
 - (i) maintenance performed on airplane structure, powerplant and mechanical and electrical systems,
 - (ii) work on avionic systems requiring only simple tests to prove their serviceability and not requiring troubleshooting.
 5. A category C aircraft maintenance license 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.
- (b) The holder of an aircraft maintenance engineer license may NOT exercise its privileges unless:
1. in compliance with the applicable requirements of Part-M and Part-145, and;
 2. in the preceding 2-year period he/she has, either had 6 months of maintenance experience in accordance with the privileges granted by the aircraft maintenance engineer license or, met the provision for the issue of the appropriate privileges, and;
 3. he/she has the adequate competence to certify maintenance on the corresponding aircraft, and;
 4. he/she is able to read, write and communicate to an understandable level in the language(s) in which the technical documentation and procedures necessary to support the issue of the certificate of release to service are written.

GM TO 66.A.20(a) Privileges

1. The following definitions apply:

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

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

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

- Auto-flight;
- 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');
- Fiber Optic Control Systems.

Note: Instruments are formally included within the privileges of the B2 license holders. However, maintenance on electromechanical and pitot-static components may also be released by a B1 license 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.

Troubleshooting means the procedures and actions necessary, using approved maintenance data, in order to identify the root cause of a defect or malfunction. 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 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 organization provided all requirements are fulfilled. LYCAA will prescribe the conditions under which these tasks may be performed.

Base Maintenance means any task falling outside the criteria that are given above for Line Maintenance.

Note: Aircraft maintained in accordance with 'progressive' type programs 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.

2. The category B3 license does not include any A subcategory. Nevertheless, this does not prevent the B3 license holder from releasing maintenance tasks typical of the A1.2 subcategory for piston-engine non-pressurized airplanes of 2 000 kg MTOM and below, within the limitations contained in the B3 license.
3. The category C license 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, B3 and support staff, as appropriate, have signed for the maintenance tasks under their respective specialization. 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, B3 and support staff, as appropriate, before issue of the certificate of release to service. Only category C personnel who also hold category B1, B2, B3 may perform both roles in base maintenance.

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

The six (6) months maintenance experience in two (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:

- (i) Six (6) months continuous employment within the same organization; or
- (ii) Six (6) months split up into different blocks, employed within the same or in different organizations.

The six (6) months period can be replaced by one hundred (100) days of maintenance experience in accordance with the privileges, whether they have been performed within an approved organization or as independent certifying staff according to Part-M, or as a combination thereof.

When license holder maintains and releases aircraft in accordance with Part-M, in certain circumstances this number of days may even be reduced by fifty percent (50%) when agreed in advance by the Authority. These circumstances consider the cases where the license holder happens to be the owner of an aircraft and carries out maintenance on his own aircraft, or where a license holder maintains an aircraft operated for low utilization, that does not allow the license holder to accumulate the required experience. This reduction should not be combined with the twenty percentage (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 six (6) months period.

2. Nature of the experience

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

- (i) Servicing;
- (ii) Inspection;
- (iii) Operational and functional testing;
- (iv) Trouble-shooting;
- (v) Repairing;
- (vi) Modifying;
- (vii) Changing component;
- (viii) supervising these activities;
- (ix) Releasing aircraft to service.

For Category A license holders, the experience should include exercising the privileges, by means of performing tasks related to the authorization on at least one aircraft type for each license subcategory. This means tasks as mentioned in Part-145, including servicing, component changes and simple defect rectifications.

For Category B1, B2 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 license (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 license category):

- (i) Propulsion systems (piston, turboprop, turbofan, turboshaft, jet-engine or push propellers), and;
- (ii) Flight control systems (only mechanical controls, hydro-mechanically powered controls or electro-mechanically powered controls), and;
- (iii) Avionic systems (analogue systems or digital systems), and;
- (iv) Structure (manufactured of metal, composite or wood).

For licenses endorsed with (sub) group ratings:

- (i) In the case of B1 license endorsed with (sub)group ratings (either manufacturer subgroup or full (sub)group), as defined in [66.A.45](#), the holder should show experience on at least one aircraft type per (sub)group and per aircraft structure (metal, composite, wood).
- (ii) In the case of a B2 license endorsed with (sub) group ratings (either manufacturer subgroup or full (sub) group), as defined in [66.A.45](#), the holder should show experience on at least one aircraft type per (sub) group.
- (iii) In the case of a B3 license endorsed with the rating 'piston-engine non-pressurized airplanes of 2.000 kg MTOM and below' as defined in [66.A.45](#), the holder should show experience on at least one aircraft type per aircraft structure (metal, composite, wooden).

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

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

A maximum of twenty percent (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:

- (i) Aircraft maintenance related training as an instructor/assessor or as a student;
- (ii) Maintenance technical support/engineering;
- (iii) 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:

- (i) Date;
- (ii) Aircraft type;
- (iii) Aircraft identification i.e., registration;
- (iv) ATA chapter (optional);
- (v) Operation performed i.e., 100 FH check, MLG wheel change, engine oil checks and complement, SB embodiment, trouble shooting, structural repair, STC embodiment etc.;
- (vi) Type of maintenance i.e., base, or line;
- (vii) Type of activity i.e., perform, supervise, release;

- (viii) Category used A, B1, B2, B3 or C;
- (ix) Duration in days or partial-days.

GM TO 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 two (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 six (6) months of experience in the preceding two (2) years will need to be met after the second year.

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

The wording 'has the adequate competence to certify maintenance on the corresponding aircraft' means that the license holder and, if applicable, the organization 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 license and ratings.

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

1. Type ratings which have been endorsed on a license in accordance with Part-66 'List of Type Ratings' after attending type training/on-the-job training which did not cover all the models/variants included in such rating. For example, a license endorsed with the rating Airbus A318/A319/A320/A321 (CFM56) after attending type training/on-the-job training covering only the Airbus A320 (CFM56).
2. Type ratings which have been endorsed on a license in accordance with Part-66 'List of Type Ratings' after a new variant has been added to the rating in Appendix A, without performing difference training. For example, a license 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 B737-900.
3. 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.
4. Specific technology and options selected by each customer, which may not have been covered by the type training/on-the-job training.

5. Changes in the basic knowledge requirements of Part-66 not requiring re-examination of existing license holders (grandfathered privileges).
6. 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.
7. Persons meeting the requirements of six (6) months of experience every two (2) years only on certain similar aircraft types as allowed by [AMC to 66.A.20\(b\)\(2\)](#).
8. Persons holding a Part-66 license 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 license 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 Part-145.

GM TO 66.A.20(b)(4) Privileges

1. Holders of a Part-66 aircraft maintenance engineer license 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 license holder is able to:
 - (i) read and understand the instructions and technical manuals used for the performance of maintenance;
 - (ii) make written technical entries and any maintenance documentation entries, which can be understood by those with whom they are normally required to communicate;
 - (iii) read and understand the maintenance organization procedures;
 - (iv) 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 engineer license, or for the addition of a category or subcategory to such a license, shall demonstrate by examination a level of knowledge of the appropriate subject modules in accordance with [Appendix I to Part-66](#). The examination shall comply with the standard set out in [Appendix II to Part-66](#) and shall be conducted either by a training organization, appropriately approved in accordance with Part-147, or by the LYCAA.
- (b) The training courses and examinations shall have been passed within ten (10) years prior to the application for an aircraft maintenance engineer license or the addition of a category or subcategory to such a license. Should this not be the case, examination credits may be obtained in accordance with point (c).
- (c) The applicant may apply to the competent authority for full or partial examination credits for the basic knowledge requirements for:
 - (i) basic knowledge examinations that do not meet the requirement laid down in point (b);
 - (ii) any other technical qualification considered by the LYCAA to be equivalent to the knowledge standard of [Annex III Part-66](#).

Credits shall be granted in accordance with Part-66.

- (d) Credits expire 10 years after they were granted to the applicant by the competent authority. The applicant may apply for new credits after expiration.

AMC TO 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 recognized 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 the competent authority is satisfied that such knowledge and examinations are equivalent to that required by [Appendix I to Part-66](#).

GM TO 66.A.25(a) Basic knowledge requirements

The levels of knowledge for each license (sub) category are directly related to the complexity of the certifications related to the corresponding license (sub) category, which means that category A should demonstrate a limited but adequate level of knowledge, whereas category B1, B2 and B3 should demonstrate a complete level of knowledge in the appropriate subject modules.

66.A.30 Basic experience requirements

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

1. for category A, subcategories B1.2 and B1.4 and category B3:
 - (i) Three (3) years of practical maintenance experience on operating aircraft, if the applicant has no previous relevant technical training, or;
 - (ii) Two (2) years of practical maintenance experience on operating aircraft and completion of training considered relevant by the LYCAA as a skilled worker, in a technical trade, or;
 - (iii) One (1) year of practical maintenance experience on operating aircraft and completion of a basic training course approved in accordance with Part-147.
2. for category B2 and subcategories B1.1 and B1.3:
 - (i) Five (5) years of practical maintenance experience on operating aircraft if the applicant has no previous relevant technical training, or;
 - (ii) Three (3) years of practical maintenance experience on operating aircraft and completion of training considered relevant by LYCAA as a skilled worker, in a technical trade, or;
 - (iii) Two (2) years of practical maintenance experience on operating aircraft and completion of a basic training course approved in accordance with Part-147.
3. for category C with respect to complex motor-powered aircraft:
 - (i) Three (3) years of experience exercising category B1.1, B1.3 or B2 privileges on complex motor-powered aircraft or as support staff according to Part-145, or, a combination of both, or;
 - (ii) Five (5) years of experience exercising category B1.2 or B1.4 privileges on complex motor-powered aircraft or as support staff according to Part- 145, or a combination of both.
4. for category C with respect to other than complex motor-powered aircraft: three (3) years of experience exercising category B1 or B2 privileges on other than complex motor-powered aircraft or as support staff according to Part-145, or a combination of both.
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 recognized by the LYCAA, three (3) years of experience working in a civil aircraft maintenance environment on a representative selection

of tasks directly associated with aircraft maintenance including six (6) months of observation of base maintenance tasks.

- (b) An applicant for an extension to an aircraft maintenance engineer license shall have a minimum civil aircraft maintenance experience requirement appropriate to the additional category or subcategory of license applied for as defined in [Appendix III to this Part-66](#).
- (c) The experience shall be practical and involve a representative cross section of maintenance tasks on aircraft.
- (d) At least one (1) year of the required experience shall be recent maintenance experience on aircraft of the category/subcategory for which the initial aircraft maintenance engineer license is sought. For subsequent category/subcategory additions to an existing aircraft maintenance engineer license, the additional recent maintenance experience required may be less than one (1) year, but shall be at least three (3) months. The required experience shall be dependent upon the difference between the license category/subcategory held and applied for. Such additional experience shall be typical of the new license category/subcategory sought.
- (e) Notwithstanding point (a), aircraft maintenance experience gained outside a civil aircraft maintenance environment shall be accepted when such maintenance is equivalent to that required by this Part-66 as established by the LYCAA. 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 10 years preceding the application for an aircraft maintenance engineer license or the addition of a category or subcategory to such a license.

AMC TO 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 category C license may be qualified by having three (3) years of 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 license demonstrate at least twelve (12) months experience as a B1 or B2 support staff.
3. A skilled worker is a person who has successfully completed a training, acceptable to the LYCAA, 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 organizations, aero clubs, owners, etc., as relevant to the license category/subcategory;
 - should cover a wide range of tasks in terms of 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 organizations (Part-145, 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 LYCAA) 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 license 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 airplanes) + B1.3 (turbine helicopters): The Regulation requires five (5) years of experience for B1.1 and five (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 airplanes 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 airplanes and turbine helicopters (for example, airplanes in the morning, helicopters in the afternoon, or a few days every week on airplanes and a few days every week on helicopters).
 - Application for a B1.1 (turbine airplanes) + 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 airplanes (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 TO 66.A.30(d) Basic experience requirements

To be considered as recent experience, at least 50% of the required 12-month recent experience should be gained within the 12-month period prior to the date of application for the aircraft maintenance engineer license. The remainder of the recent experience should have been gained within the 7-year period prior to application. It must be noted that the rest of the basic experience required by [66.A.30](#) must be obtained within the 10 years prior to the application as required by [66.A.30\(f\)](#).

AMC TO 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. For category B1, B2 or B3, the additional experience of civil aircraft maintenance should be a minimum of 12 months.
2. Aircraft maintenance experience gained outside a civil aircraft maintenance environment may include aircraft maintenance experience gained in armed forces, coast guards, police, etc. or in aircraft manufacturing.

66.A.40 Continued validity of the aircraft maintenance engineer license

- (a) The aircraft maintenance engineer license becomes invalid five (5) years after its last issue or change, unless the holder submits his/her aircraft maintenance engineer license to the LYCAA, in order to verify that the information contained in the license is the same as that contained in the LYCAA records, pursuant to point [66.B.120](#).
- (b) The holder of an aircraft maintenance engineer license shall complete the LYCAA Form and submit it with the holder's copy of the license to the LYCAA, unless the holder works in a maintenance organization approved in accordance with Part-145 that has a procedure in its exposition whereby such organization may submit the necessary documentation on behalf of the aircraft maintenance engineer license holder.
- (c) Any certification privilege based upon an aircraft maintenance engineer license becomes invalid as soon as the aircraft maintenance engineer license is invalid.
- (d) The aircraft maintenance engineer license is only valid:
 - (i) when issued and/or changed by the LYCAA, and,
 - (ii) when the holder has signed the document.

GM TO 66.A.40 Continued validity of the aircraft maintenance license

The validity of the aircraft maintenance engineer license 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\(b\)](#).

66.A.41 Continuing oversight

- (a) The Authority ensures the continuing oversight of the aircraft maintenance engineer license and in particular for the revocation, suspension or limitation of the aircraft maintenance engineer license.
- (b) The Authority shall suspend, limit or revoke the aircraft maintenance license 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 license and/or the certification privileges by falsification of documentary evidence;
 - 2. failing to carry out requested maintenance combined with failure to report such fact to the organization 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 organization 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 Regulation.

66.A.42 Procedure for the renewal of an AMEL validity

- (a) The authority shall compare the holder's aircraft maintenance engineer license with the authority records and verify any pending revocation, suspension or change action pursuant to point 66.A.41. If the documents are identical and no action is pending pursuant to point 66.A.41, the holder's copy shall be renewed for five (5) years and the file endorsed accordingly.
- (b) If the Authority records are different from the aircraft maintenance license held by the license holder:
 1. The authority shall investigate the reasons for such differences and may choose not to renew the aircraft maintenance license.
 2. The authority shall inform the license holder and any known maintenance organization approved in accordance with Part-M Subpart F or Part-145 that may be directly affected by such fact.
 3. The authority shall, if necessary, take action in accordance with point 66.A.41 to revoke, suspend or change the license in question.

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 engineer license needs to have their license endorsed with the relevant aircraft ratings:
 1. For category B1, B2 or C, the relevant aircraft ratings are the following:
 - (i) for Group 1 aircraft, the appropriate aircraft type rating;
 - (ii) for Group 2 aircraft, the appropriate aircraft type rating, manufacturer subgroup rating or full subgroup rating;
 - (iii) for Group 3 aircraft, the appropriate aircraft type rating or full group rating;
 2. For category B3, the relevant rating is 'piston-engine non-pressurized airplanes of 2.000 kg MTOM and below'.
 3. For category A, no rating is required, subject to compliance with the requirements of Part-145.
- (b) The endorsement of aircraft type ratings requires the satisfactory completion of the relevant category B1, B2 or C aircraft type training in accordance with [Appendix II to Part-66](#);
- (c) In addition to the requirements of point (b), the endorsement of the first aircraft type rating within a given category/subcategory requires satisfactory completion of the

corresponding on-the-job training. This on-the-job training shall comply with [Appendix II to Part-66](#).

(d) By derogation from points (b) and (c), for Group 2 and 3 aircraft, aircraft type ratings may also be endorsed on a license after:

1. satisfactory completion of the relevant category B1, B2 or C aircraft type examination in accordance with [Appendix II to this Part-66](#);
2. in the case of B1 and B2 category, demonstration of practical experience in the aircraft type. In that case, the practical experience shall include a representative cross section of maintenance activities relevant to the license category.
3. In the case of a category C rating, for a person qualified by holding an academic degree as specified in point [66.A.30\(a\)\(7\)](#), the first relevant aircraft type examination shall be at the category B1 or B2 level.

(e) For Group 2 aircraft:

1. the endorsement of manufacturer subgroup ratings for category B1 and C license holders requires complying with the aircraft type rating requirements for at least two aircraft types from the same manufacturer, which combined are representative of the applicable manufacturer subgroup;
2. the endorsement of full subgroup ratings for category B1 and C license holders requires complying with the aircraft type rating requirements for at least three aircraft types from different manufacturers, which combined are representative of the applicable subgroup;
3. the endorsement of manufacturer subgroup and full subgroup ratings for category B2 license holders requires demonstration of practical experience which shall include a representative cross section of maintenance activities relevant to the license category and to the applicable aircraft subgroup;

(f) For Group 3 aircraft:

1. the endorsement of the full Group 3 rating for category B1, B2 and C license holders requires demonstration of practical experience, which shall include a representative cross section of maintenance activities relevant to the license category and to the Group 3.
2. for category B1, unless the applicant provides evidence of appropriate experience, Group 3 rating shall be subject to the following limitations, which shall be endorsed on the license:
 - pressurized airplanes,
 - metal-structure airplanes,

- composite-structure airplanes,
- wooden-structure airplanes,
- airplanes with metal-tubing structure covered with fabric.

(g) For the B3 license:

1. the endorsement of the rating 'piston engine non-pressurized airplanes of 2.000 kg MTOM and below' requires demonstration of practical experience, which shall include a representative cross section of maintenance activities relevant to the license category;
2. unless the applicant provides evidence of appropriate experience, the rating referred to in point (1) shall be subject to the following limitations, which shall be endorsed on the license:
 - wooden-structure airplanes,
 - airplanes with metal-tubing structure covered with fabric,
 - metal-structure airplanes,
 - composite-structure airplanes.

GM TO 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 C to Part-66](#).

The table contains the following:

- (i) The different aircraft groups.
- (ii) For each license (sub)category, which ratings are possible (at the choice of the applicant):
 - Individual type ratings.
 - Full and/or Manufacturer (sub)group ratings.
- (iii) For each rating option, which are the qualification options.
- (iv) For the B1.2 license (Group 3 aircraft) and for the B3 license (piston-engine non-pressurized airplanes of 2.000 kg MTOM and below), which are the possible limitations to be included in the license, if not sufficient experience can be demonstrated in those areas.

Note: OJT means 'On-the-Job Training' and is only required for the first aircraft rating in the license (sub) category.

Aircraft rating requirements			
Aircraft Groups	B1/B3 license	B2 license	C license
<p>Group1 - Complex motor-powered aircraft.</p> <ul style="list-style-type: none"> - Multiple engine helicopters. - Airplanes certified above FL290. - Aircraft equipped with fly-by-wire. - Other aircraft when defined by the Agency. 	<p>(For B1)</p> <p>Individual type rating</p> <p>Type training:</p> <ul style="list-style-type: none"> - Theory + examination - Practical + assessment PLUS <p>OJT (for first aircraft in license subcategory)</p>	<p>Individual type rating</p> <p>Type training:</p> <ul style="list-style-type: none"> - Theory + examination - Practical + assessment PLUS <p>OJT</p> <p>(For first aircraft in license subcategory)</p>	<p>Individual type rating</p> <p>Type training:</p> <ul style="list-style-type: none"> - Theory + examination
<p>Group 2</p> <p>Subgroups:</p> <p>2a: single turboprop airplanes (*)</p> <p>2b: single turbine engine helicopters (*)</p> <p>2c: single piston engine helicopters (*)</p> <p>(*) Except those classified in Group 1.</p>	<p>(For B1.1, B1.3, B1.4)</p> <p>Individual TYPE RATING (type training + OJT) or (type examination + practical experience)</p> <p>full subgroup rating (type training + OJT) or (type examination + practical experience) on at least 3 aircraft representatives of that subgroup</p> <p>Manufacturer subgroup rating (type training + OJT) or (type examination + practical experience) on at least 2 aircraft representatives of that manufacturer subgroup</p>	<p>Individual type rating (type training + OJT) or (type examination + practical experience)</p> <p>Full subgroup rating based on demonstration of practical experience</p> <p>Manufacturer SUBGROUP RATING based on demonstration of practical experience</p>	<p>Individual type rating type training or type examination</p> <p>full subgroup rating type training or type examination on at least 3 aircraft representatives of that subgroup</p> <p>Manufacturer subgroup rating type training or type examination on at least 2 aircraft representatives of that manufacturer subgroup</p>

Aircraft rating requirements			
Aircraft Groups	B1/B3 license	B2 license	C license
Group3 Piston engine airplanes (except those classified in Group 1)	(For B1.2) Individual type rating (type training + OJT) or (type examination + practical experience) full group 3 rating based on demonstration of practical experience Limitations: - Pressurized airplanes - Metal airplanes - Composite airplanes - Wooden airplanes - Metal tubing & fabric Airplanes	Individual type rating (type training + OJT) or (type examination + practical experience) Full group 3 rating based on demonstration of appropriate experience	Individual type rating type training or type examination Full group 3 rating based on demonstration of practical experience
Piston-engine non pressurized airplanes of 2 000 kg MTOM and below	(For B3) full rating "Piston engine non- pressurized airplanes of 2 000 kg MTOM and below" based on demonstration of practical experience Limitations: - Metal airplanes - Composite airplanes - Wooden airplanes - Metal tubing & fabric airplanes	Not applicable	Not applicable

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

1. An aircraft type rating includes all the aircraft models/variants listed in [column 2 of Appendix A to AMC to Part-66](#).
2. When a person already holds a type rating on the license and such type rating is amended in the [Appendix A 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 license. 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 license holder and, if applicable, the maintenance organization where he/she is employed to comply with [66.A.20\(b\)\(3\)](#) and Part-145, as applicable, before he/she exercises certification privileges.
3. 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) AND (g)(1) endorsement with aircraft ratings

1. The 'practical experience' should cover a representative cross section including at least fifty percent (50%) of tasks contained in [Appendix B to Part-66](#) relevant to the license category and to the applicable aircraft type ratings or aircraft (sub)group ratings being endorsed. This experience should cover tasks from each paragraph of the [Appendix B](#) list. Other tasks than those in the [Appendix B](#) may be considered as a replacement when they are relevant. In the case of (sub)group ratings, this experience may be shown by covering one or several aircraft types of the applicable (sub)group and may include experience on aircraft classified in group 1, 2 and/or 3 as long as the experience is relevant. The practical experience should be obtained under the supervision of authorized certifying staff.
2. In the case of endorsement of individual type ratings for Group 2 and Group 3 aircraft, for the second aircraft type of each manufacturer (sub) group, the practical experience should be reduced to thirty percent (30%) of the tasks contained in [Appendix B](#) relevant to the license category and to the applicable aircraft type. For subsequent aircraft types of each manufacturer (sub) group, this should be reduced to twenty percent (20%).
3. Practical experience should be demonstrated by the submission of records or a log book showing the [Appendix B tasks](#) performed by the applicant. Typical data to be recorded are similar to those described in [AMC to 66.A.20\(b\)\(2\)](#).

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

1. For the granting of manufacturer subgroup ratings for Group 2 aircraft, for B1 and C license 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:

- (i) Flight control systems (mechanical controls/hydro-mechanically powered controls / electromechanically powered controls), and;
- (ii) Avionic systems (analogue systems / digital systems), and;
- (iii) 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 license subcategory for which the rating will be endorsed.

2. For the granting of full subgroup ratings for Group 2 aircraft, for B1 and C license 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:

- (i) Flight control systems (mechanical controls/ hydro-mechanically powered controls/ electromechanically powered controls), and;
- (ii) Avionic systems (analogue systems / digital systems), and;
- (iii) 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 license 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 A 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:

- (i) When a license holder gets a manufacturer type or a manufacturer subgroup rating made of a combination of manufacturers, it covers the combination of such manufacturers.

- (ii) When a license holder who intends to endorse a full subgroup rating selects three aircraft from different manufacturers, this means from different combinations of manufacturers as applicable.

66.A.50 Limitations

- (a) Limitations introduced on an aircraft maintenance license are exclusions from the certification privileges and 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 the Authority.
- (c) For limitations referred to in point [66.A.70](#), limitations shall be removed upon satisfactory completion of examination on those modules/subjects in the applicable conversion criteria referred to in point [66.B.200](#).

AMC TO 66.A.50(b) Limitations

1. The appropriate experience required to remove the limitations referred to in [66.A.45\(f\),\(g\) and \(h\)](#) should consist of the performance of a variety of tasks appropriate to the limitations under the supervision of authorized certifying staff. This should include the tasks required by a scheduled annual inspection. Alternatively, this experience may also be gained, if agreed by the LYCAA, 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 is acceptable to have this experience in 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. As example, would 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.
4. The application for the limitation removal should be supported by a record of experience signed by the authorized 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 license, as evidence of qualification, within twenty-four (24) hours upon request by an authorized person.

66.A.70 Conversion provisions

- (a) Subject to sub-paragraph (b), a previously issued Part-66 aircraft maintenance engineer license issued prior to the effective date of this revision of Part-66 shall be replaced with a Part-66 aircraft maintenance engineer license upon renewal without further examination.
- (b) Where necessary, the replacement Part-66 aircraft maintenance engineer license shall contain technical limitation(s) in relation to the scope of the pre-existing qualification.
- (c) Limitations on Part-66 aircraft maintenance engineer license may be removed when the license holder successfully applies to the LYCAA for their removal after fulfilling the necessary theoretical and practical requirements, or any experience as required by the LYCAA.
- (d) A person undergoing a certifying staff qualification process prior to the date of entry into force of this Part-66 may continue to be qualified. The holder of a certifying staff qualification gained following such process shall be issued an aircraft maintenance engineer license by the LYCAA without further examination, subject to the conditions specified in Section B Subpart C.

GM TO 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 A and B, all the modules/subjects corresponding to the B1 license except for electrical power systems. This person would be issued a Part-66 aircraft maintenance license in the B1 category with a limitation (exclusion) on electrical power systems.

For removal of limitations, refer to [66.A.50\(c\)](#).

66.A.75 Conversion of foreign licenses

At the discretion of the LYCAA, valid licenses issued by other ICAO Contracting States in accordance with ICAO annex 1 may be converted into Part-66 licenses provided that:

- (a) An equivalent level of safety exists between the training and testing requirements of the ICAO Contracting State and the Part-66 requirements.
- (b) Basic knowledge and experience requirements set out in this Part-66 are complied with.
- (c) A converted license may be restricted to the privileges of the foreign license.

SECTION B - PROCEDURES FOR COMPETENT AUTHORITY

SUBPART A - GENERAL

66.B.1 Scope

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

66.B.10 Competent Authority

(a) General

The LYCAA shall be responsible for the issuance, continuation, change, suspension or revocation of aircraft maintenance engineer licenses. LYCAA shall establish an adequate organizational structure to ensure compliance with this Part-66.

(b) Resources

The LYCAA shall be appropriately staffed to ensure the implementation of the requirements of this Part-66.

(c) Procedures

The LYCAA shall establish documented procedures detailing how compliance with this Part-66 is accomplished. These procedures shall be reviewed and amended to ensure continued compliance.

66.B.20 Record-keeping

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

(b) These records shall include for each license:

1. the application for an aircraft maintenance engineer license or change to that license, including all supporting documentation;
2. a copy of the aircraft maintenance engineer license 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 engineer license holder;
6. the records of examinations conducted by the competent authority;

7. the applicable conversion report used for conversion;
 8. the applicable credit report used for crediting.
- (c) Records referred to in points 1 to 5 of point (b) shall be kept at least five (5) years after the end of the license 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 the LYCAA (chronological, alphabetical order, etc.).
2. All records containing sensitive data regarding applicants or organizations 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.30 Exemptions

All exemptions granted in accordance Libyan Regulation shall be recorded and retained by the competent authority.

SUBPART B - ISSUE OF AN AIRCRAFT MAINTENANCE LICENSE

This Subpart provides the procedures to be followed by the LYCAA to issue, change or continue an aircraft maintenance engineer license.

66.B.100 Procedure for the issue of an Aircraft Maintenance Engineer License by the LYCAA

- (a) On receipt of the application form and any supporting documentation, the LYCAA shall verify the Form for completeness and ensure that the experience claimed meets the requirement of this Part-66.
- (b) The LYCAA shall verify an applicant's examination status and/or confirm the validity of any credits to ensure that all module requirements of [Appendix I](#) or [Appendix III](#), as applicable, have been met as required by this Part-66.
- (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-66, the LYCAA shall issue the relevant aircraft maintenance engineer license to the applicant. The same information shall be kept on LYCAA records.
- (d) In the case where aircraft types or groups are endorsed at the time of the issuance of the first aircraft maintenance engineer license, the competent authority shall verify compliance with point [66.B.115](#).

AMC 66.B.100 Procedure for the issue of an Aircraft Maintenance Engineer License by LYCAA

1. Applicants claiming the maximum reduction in [66.A.30\(a\)](#) total experience based upon successful completion of a Part-147 approved basic training course should include the Part-147 certificate of recognition for approved basic training.
2. Applicants claiming reduction in [66.A.30\(a\)](#) total experience based upon successful completion of training considered relevant by the LYCAA 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 LYCAA has recognized such non-civil aircraft maintenance experience. The LYCAA in recognizing non-civil aircraft maintenance experience should have specified who within the non-civil environment may make a statement that the applicant has met relevant maintenance experience. The applicant should include a detailed statement of such maintenance experience signed by the non-civil maintenance authority in accordance with the conditions specified by the LYCAA.
4. The LYCAA should check that the experience record satisfies above paragraphs in terms of content and the countersigning signature.

AMC TO 66.B.100 TO 66.B.115

Aircraft type endorsement should use the standard codes contained in this Part-66.

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

- (a) At the completion of the procedures specified in points [66.B.100](#), the LYCAA shall endorse the additional basic category or subcategory on the aircraft maintenance engineer license by stamp and signature or shall reissue the license.
- (b) The record system of the LYCAA shall be changed accordingly.

AMC TO 66.B.110 Procedure for the change of an AMEL to include an additional basic category or subcategory

In the case of computer-generated licenses, the license should be reissued.

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

- (a) On receipt of a satisfactory application form and any supporting documentation demonstrating compliance with the requirements of the applicable rating together with the accompanying aircraft engineer maintenance license, the competent authority shall either:
 - 1. endorse the applicant's aircraft maintenance engineer license with the applicable aircraft rating, or;
 - 2. reissue the said license to include the applicable aircraft rating, or;
 - 3. remove the applicable limitations in accordance with point [66.A.50](#).

The LYCAA record system shall be changed accordingly.

- (b) In the case where the complete type training is not conducted by maintenance training organization appropriately approved in accordance with Part-147, the LYCAA 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 organization approved in accordance with Part-147.
- (d) In the case where the aircraft type training is not covered by a single course, the LYCAA shall be satisfied prior to the type rating endorsement that the content and length of the courses fully satisfy the scope of the license category and that the interface areas have been appropriately addressed.

- (e) In the case of differences training, the LYCAA 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 the LYCAA, are acceptable for type rating endorsement.
- (f) The LYCAA shall ensure that compliance with the practical elements of the type training is demonstrated by one of the following:
1. by the provision of detailed practical training records or a logbook provided by the organization which delivered the course directly approved by the LYCAA in accordance with point [66.B.120](#);
 2. where available, by a training certificate, covering the practical training element, issued by a maintenance training organization appropriately approved in accordance with Part-147.

AMC TO 66.B.115 Procedure for the change of an AMEL to include an aircraft rating or to remove limitations

- (a) Where the type training has not been conducted by a Part-147 organization, there should be supporting documents confirming to the LYCAA that:
- The type training has been approved by the LYCAA in accordance with [66.B.120](#), and;
 - 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 program described in [Appendix II to Part-66](#), the LYCAA should develop adequate procedures which may be similar to the procedure described in [AMC to 66.B.120](#) for the 'direct approval of aircraft type training'.

In the case where the licensing competent authority is different from the competent authority of the maintenance organization which provides the OJT, the licensing authority may take into consideration the fact that the maintenance organization may already have the OJT program accepted by their own competent authority (through chapter 3.15 of the MOE, as described in Part-145).

66.B.120 Procedure for the renewal of an AMEL validity

- (a) The LYCAA shall compare the holder's aircraft maintenance engineer license with the competent authority records and verify any pending revocation, suspension or change action. If the documents are identical and no action is pending, the holder's copy shall be renewed for five (5) years and the file endorsed accordingly.
- (b) If the competent authority records are different from the aircraft maintenance engineer license held by the license holder:
1. the competent authority shall investigate the reasons for such differences and may choose not to renew the aircraft maintenance engineer license.
 2. the competent authority shall inform the license holder and any known maintenance organization approved in accordance with Part-M Subpart F or Part-145 that may be directly affected of such fact.
 3. the competent authority shall, if necessary, take action to revoke, suspend or change the license in question.

AMC TO 66.B.120 Procedure for the renewal of an AMEL validity

The LYCAA should not carry out any investigation to ensure that the license holder is in current maintenance practice as this is not a condition for the renewal of a license. 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.

For the purpose of ensuring the continued validity of the certification privileges, the LYCAA may, when periodically reviewing the organizations in accordance with Part-145, or during on-the-spot checks, request the license holder to provide documentary evidence of compliance with [66.A.20\(b\)](#) when exercising certification privileges.

SUBPART C - EXAMINATIONS

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

66.B.200 Examination by the Competent Authority

- (a) All basic examinations shall be carried out using the multi-choice question format and essay questions as specified below. The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All of the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length. In numerical questions, the incorrect answers shall correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions: they shall not be mere random numbers.
- (b) Each multi-choice question shall have three alternative answers of which only one shall be the correct answer and the candidate shall be allowed a time per module which is based upon a nominal average of seventy-five (75) seconds per question.
- (c) Each essay question requires the preparation of a written answer and the candidate shall be allowed twenty (20) minutes to answer each such question.
- (d) Suitable essay questions shall be drafted and evaluated using the knowledge syllabus in [Appendix I](#) Modules 7A, 7B, 9A, 9B and 10.
- (e) 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. The model answer will also be broken down into a list of the important points known as Key Points.
- (f) The pass mark for each module and sub-module multi-choice part of the examination is seventy five percent (75%).
- (g) The pass mark for each essay question is seventy five percent (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.
- (h) If either the multi-choice part only or the essay part only is failed, then it is only necessary to retake the multi-choice or essay part, as appropriate.
- (i) Penalty marking systems shall not be used to determine whether a candidate has passed.
- (j) A failed module may not be retaken for at least ninety (90) days following the date of the failed module examination, except in the case of a maintenance training organization, 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 thirty (30) days.

- (k) 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 license, where the license has already been issued.
- (l) The maximum number of consecutive attempts for each module is three (3). Further sets of three attempts are allowed with a one (1) year waiting period between sets.

The applicant shall confirm in writing to the LYCAA, the number and dates of attempts during the last year and the. The LYCAA is responsible for checking the number of attempts within the applicable timeframes.

GM 66.B.200 EXAMINATION BY THE COMPETENT AUTHORITY

Number of questions per module:

1. Module 1 - Mathematics

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

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

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

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

2. Module 2 - Physics

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

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

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

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

3. Module 3 - Electrical fundamentals

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

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

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

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

4. Module 4 - Electronic fundamentals

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

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

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

5. Module 5 - Digital techniques/electronic instrument systems

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

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

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

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

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

6. Module 6 - Materials and hardware

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

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

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

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

7. Module 7A - Maintenance practices

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

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

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

Module 7B - Maintenance practices

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

8. Module 8 - Basic aerodynamics

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

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

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

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

9. Module 9A - Human factors

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

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

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

Module 9B - Human factors

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

10. Module 10 - Aviation legislation

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

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

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

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

11. Module 11A - Turbine airplane aerodynamics, structures and systems

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

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

Module 11B - Piston airplane aerodynamics, structures and systems

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

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

Module 11C - Piston airplane aerodynamics, structures and systems

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

12. Module 12 - Helicopter aerodynamics, structures and systems

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

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

13. Module 13 - Aircraft aerodynamics, structures and systems

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

14. Module 14 - Propulsion

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

15. Module 15 - Gas turbine engine

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

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

16. Module 16 - Piston engine

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

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

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

17. Module 17A - Propeller

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

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

Module 17B - Propeller

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

SUBPART D - CONTINUING OVERSIGHT

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

66.B.500 Revocation, suspension or limitation of the AMEL

The competent authority shall suspend, limit or revoke the aircraft maintenance engineer license 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:

- (a) obtaining the aircraft maintenance license and/or the certification privileges by falsification of documentary evidence;
- (b) failing to carry out requested maintenance combined with failure to report such fact to the organization or person who requested the maintenance;
- (c) failing to carry out required maintenance resulting from own inspection combined with failure to report such fact to the organization or person for whom the maintenance was intended to be carried out;
- (d) negligent maintenance;
- (e) falsification of the maintenance record;
- (f) 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;
- (g) carrying out maintenance or issuing a certificate of release to service when adversely affected by alcohol or drugs;
- (h) issuing certificate of release to service while not in compliance with Part-M, Part-145 or Part-66.

APPENDICES TO PART-66

Appendix I - Basic knowledge requirements

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

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

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

- (a) **Level 1:** A familiarization with the principal elements of the subject.

Objectives:

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

- (b) **Level 2:** A general knowledge of the theoretical and practical aspects of the subject and an ability to apply that knowledge.

Objectives:

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

- (c) **Level 3:** A detailed knowledge of the theoretical and practical aspects of the subject and a capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner.

Objectives:

- (i) The applicant should know the theory of the subject and interrelationships with other subjects.
- (ii) The applicant should be able to give a detailed description of the subject using theoretical fundamentals and specific examples.
- (iii) The applicant should understand and be able to use mathematical formulae related to the subject.

- (iv) The applicant should be able to read, understand and prepare sketches, simple drawings and schematics describing the subject.
- (v) The applicant should be able to apply his knowledge in a practical manner using manufacturer's instructions.
- (vi) The applicant should be able to interpret results from various sources and measurements and apply corrective action where appropriate.

2. Modularization

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

Subject module	A or B1 airplane		A or B1 helicopter		B2	B3
	Turbine engine(s)	Piston engine(s)	Turbine engine(s)	Piston engine(s)	Avionics	Piston-engine non-pressurized Airplanes ≤2000 kg
1	x	x	x	x	x	x
2	x	x	x	x	x	x
3	x	x	x	x	x	x
4	x	x	x	x	x	x
5	x	x	x	x	x	x
6	x	x	x	x	x	x
7A	x	x	x	x	x	-
7B	-	-	-	-	-	x
8	x	x	x	x	x	x
9A	x	x	x	x	x	-
9B	-	-	-	-	-	x
10	x	x	x	x	x	x
11A	x	-	-	-	-	-
11B	-	x	-	-	-	-
11C	-	-	-	-	-	x
12	-	-	x	x	-	-
13	-	-	-	-	x	-
14	-	-	-	-	x	-
15	x	-	x	-	-	-
16	-	x	-	x	-	x
17A	x	x	-	-	-	-
17B	-	-	-	-	-	x

MODULE 1. MATHEMATICS

	Level			
	A	B1	B2	B3
1.1 Arithmetic Arithmetical terms and signs, methods of multiplication and division, fractions and decimals, factors and multiples, weights, measures and conversion factors, ratio and proportion, averages and percentages, areas and volumes, squares, cubes, square and cube roots.	1	2	2	2
1.2 Algebra (a) Evaluating simple algebraic expressions, addition, subtraction, multiplication and division, use of brackets, simple algebraic fractions; (b) Linear equations and their solutions; Indices and powers, negative and fractional indices; Binary and other applicable numbering systems; Simultaneous equations and second-degree equations with one unknown; Logarithms.	1	2	2	2
	-	1	1	1
1.3 Geometry (a) Simple geometrical constructions; (b) Graphical representation; nature and uses of graphs, graphs of equations/functions; (c) Simple trigonometry; trigonometrical relationships, use of tables and rectangular and polar coordinates.	-	1	1	1
	2	2	2	2
	2	2	2	2

MODULE 2. PHYSICS

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

		Level			
		A	B1	B2	B3
2.2.4 Fluid dynamics					
	(a) Specific gravity and density;	1	2	2	2
	(b) Viscosity, fluid resistance, effects of streamlining; Effects of compressibility on fluids; Static, dynamic and total pressure: Bernoulli's Theorem, venturi.	1	2	2	1
2.3 Thermodynamics					
	(a) Temperature: thermometers and temperature scales: Celsius, Fahrenheit and Kelvin; Heat definition;	2	2	2	2
	(b) Heat capacity, specific heat; Heat transfer: convection, radiation and conduction; Volumetric expansion; First and second law of thermodynamics; Gases: ideal gases laws; specific heat at constant volume and constant pressure, work done by expanding gas; Isothermal, adiabatic expansion and compression, engine cycles, constant volume and constant pressure, refrigerators and heat pumps; Latent heats of fusion and evaporation, thermal energy, heat of combustion.	-	2	2	1
2.4 Optics (Light)					
	Nature of light; speed of light; Laws of reflection and refraction: reflection at plane surfaces, reflection by spherical mirrors, refraction, lenses; Fiber optics.	-	2	2	-
2.5 Wave Motion and Sound					
	Wave motion: mechanical waves, sinusoidal wave motion, interference phenomena, standing waves; Sound: speed of sound, production of sound, intensity, pitch and quality, Doppler effect.	-	2	2	-

MODULE 3. ELECTRICAL FUNDAMENTALS

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

	Level			
	A	B1	B2	B3
<p>3.7 Resistance/Resistor</p> <p>(a) Resistance and affecting factors; Specific resistance; Resistor color code, values and tolerances, preferred values, wattage ratings; Resistors in series and parallel; Calculation of total resistance using series, parallel and series parallel combinations; Operation and use of potentiometers and rheostats; Operation of Wheatstone Bridge;</p> <p>(b) Positive and negative temperature coefficient conductance; Fixed resistors, stability, tolerance and limitations, methods of construction; Variable resistors, thermistors, voltage dependent resistors; Construction of potentiometers and rheostats; Construction of Wheatstone Bridge.</p>	-	2	2	1
<p>3.8 Power</p> <p>Power, work and energy (kinetic and potential); Dissipation of power by a resistor; Power formula; Calculations involving power, work and energy.</p>	-	2	2	1
<p>3.9 Capacitance/Capacitor</p> <p>Operation and function of a capacitor; Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating; Capacitor types, construction and function; Capacitor color coding; Calculations of capacitance and voltage in series and parallel circuits; Exponential charge and discharge of a capacitor, time constants; Testing of capacitors.</p>	-	2	2	1

	Level			
	A	B1	B2	B3
<p>3.7 Resistance/Resistor</p> <p>(a) Resistance and affecting factors; Specific resistance; Resistor color code, values and tolerances, preferred values, wattage ratings; Resistors in series and parallel; Calculation of total resistance using series, parallel and series parallel combinations; Operation and use of potentiometers and rheostats; Operation of Wheatstone Bridge;</p> <p>(b) Positive and negative temperature coefficient conductance; Fixed resistors, stability, tolerance and limitations, methods of construction; Variable resistors, thermistors, voltage dependent resistors; Construction of potentiometers and rheostats; Construction of Wheatstone Bridge.</p>	-	2	2	1
<p>3.8 Power</p> <p>Power, work and energy (kinetic and potential); Dissipation of power by a resistor; Power formula; Calculations involving power, work and energy.</p>	-	2	2	1
<p>3.9 Capacitance/Capacitor</p> <p>Operation and function of a capacitor; Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating; Capacitor types, construction and function; Capacitor color coding; Calculations of capacitance and voltage in series and parallel circuits; Exponential charge and discharge of a capacitor, time constants; Testing of capacitors</p>	-	2	2	1
<p>3.10 Magnetism</p> <p>(a) Theory of magnetism; Properties of a magnet; Action of a magnet suspended in the Earth's magnetic field; Magnetisation and demagnetisation; Magnetic shielding; Various types of magnetic material;</p>	-	2	2	1

	Level			
	A	B1	B2	B3
<p>Electromagnets construction and principles of operation; Hand clasp rules to determine: magnetic field around current carrying conductor;</p> <p>(b) Magneto motive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents; Precautions for care and storage of magnets. Faraday's Law; Action of inducing a voltage in a conductor moving in a magnetic field; Induction principles; Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns; Mutual induction; The effect the rate of change of primary current and mutual inductance has on induced voltage; Factors affecting mutual inductance: number of turns in coil, physical size of coil, permeability of coil, position of coils with respect to each other; Lenz's Law and polarity determining rules; Back emf, self-induction; Saturation point; Principle uses of inductors.</p>	-	2	2	1
3.11 Inductance/Inductor	-	2	2	1
3.12 DC Motor/Generator Theory				
<p>Basic motor and generator theory; Construction and purpose of components in DC generator; Operation of, and factors affecting output and direction of current flow in DC generators; Operation of, and factors affecting output power, torque, speed and direction of rotation of DC motors; Series wound, shunt wound and compound motors; Starter Generator construction.</p>	-	2	2	1

	Level			
	A	B1	B2	B3
<p>3.13 AC Theory</p> <p>Sinusoidal waveform: phase, period, frequency, cycle; Instantaneous, average, root mean square, peak, peak to peak current values and calculations of these values, in relation to voltage, current and power; Triangular/Square waves; Single/3 phase principles</p>	1	2	2	1
<p>3.14 Resistive (R), Capacitive (C) and Inductive (L) Circuits</p> <p>Phase relationship of voltage and current in L, C and R circuits, parallel, series and series parallel; Power dissipation in L, C and R circuits; Impedance, phase angle, power factor and current calculations; True power, apparent power and reactive power calculations.</p>	-	2	2	1
<p>3.15 Transformers</p> <p>Transformer construction principles and operation; Transformer losses and methods for overcoming them; Transformer action under load and no-load conditions; Power transfer, efficiency, polarity markings; Calculation of line and phase voltages and currents; Calculation of power in a three-phase system; Primary and Secondary current, voltage, turns ratio, power, efficiency; Auto transformers.</p>	-	2	2	1
<p>3.16 Filters</p> <p>Operation, application and uses of the following filters: low pass, high pass, band pass, band stop.</p>	-	1	1	-
<p>3.17 AC Generators</p> <p>Rotation of loop in a magnetic field and waveform produced; Operation and construction of revolving armature and revolving field type AC generators; Single phase, two phase and three phase alternators; Three phase star and delta connections advantages and uses; Permanent Magnet Generators.</p>	-	2	2	1

	Level			
	A	B1	B2	B3
3.18 AC Motors Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and poly phase; Methods of speed control and direction of rotation; Methods of producing a rotating field: capacitor, inductor, shaded or split pole.	-	2	2	1

MODULE 4. ELECTRONIC FUNDAMENTAL

	Level			
	A	B1	B2	B3

Appendix II - Aircraft Type Training and Examination Standard - OJT

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, including competency-based approved training, and examination shall comply with the following requirements:

1. Shall be conducted by a maintenance training organization appropriately approved in accordance with Part-147 or, when conducted by other organizations, as directly approved by the LYCAA.
2. Shall comply, except as permitted by the differences training described in point (c), with (i) the relevant elements defined in the mandatory part of the operational suitability data established in accordance with Regulation or, if such elements are not available, the standard described in point 3.1 of this Appendix, and (ii) the type training examination standard described in point 4.1 of this Appendix.
3. 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.
4. Shall have been started and completed within the 3 years preceding the application for a type rating endorsement.

(b) Practical training, including competency-based approved training, and assessment shall comply with the following requirements:

1. Shall be conducted by a maintenance training organization appropriately approved in accordance with Part-147 or, when conducted by other organizations, as directly approved by the LYCAA.
2. Shall comply, except as permitted by the differences training described in point (c), with (i) the relevant elements defined in the mandatory part of the operational suitability data established in accordance with Regulation or, if such elements are not available, the standard described in point 3.2 of this Appendix, and (ii) the type training assessment standard described in point 4.2 of this Appendix.
3. Shall include a representative cross section of maintenance activities relevant to the aircraft type.
4. Shall include demonstrations using equipment, components, simulators, other training devices or aircraft.

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

(c) Differences training:

1. 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 LYCAA.
2. Differences training has to be defined on a case-to-case basis taking into account the requirements contained in this Appendix II in respect of both theoretical and practical elements of type rating training.
3. A type rating shall only be endorsed on a license after differences training when the applicant also complies with one of the following conditions:
 - (i) having already endorsed on the license the aircraft type rating from which the differences are being identified, or;
 - (ii) having completed the type training requirements for the aircraft from which the differences are being identified.

2. Aircraft Type Training Levels

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

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

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

1. 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;
2. identify aircraft manuals, maintenance practices important to the airframe, its systems and powerplant;
3. define the general layout of the aircraft's major systems;
4. define the general layout and characteristics of the powerplant;
5. identify special tooling and test equipment used with the aircraft.

- (b) **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:

1. understand the theoretical fundamentals; apply knowledge in a practical manner using detailed procedures;
2. recall the safety precautions to be observed when working on or near the aircraft, powerplant and systems;
3. describe systems and aircraft handling particularly access, power availability and sources;
4. identify the locations of the principal components;
5. explain the normal functioning of each major system, including terminology and nomenclature;
6. perform the procedures for servicing associated with the aircraft for the following systems: Fuel, Power Plants, Hydraulics, Landing Gear, Water/Waste, and Oxygen;
7. demonstrate proficiency in use of crew reports and on-board reporting systems (minor troubleshooting) and determine aircraft airworthiness per the MEL/CDL;
8. demonstrate the use, interpretation and application of appropriate documentation including instructions for continued airworthiness, maintenance manual, illustrated parts catalogue, etc.

(c) **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:

1. 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;
2. perform system, powerplant, component and functional checks as specified in the aircraft maintenance manual;
3. demonstrate the use, interpret and apply appropriate documentation including structural repair manual, troubleshooting manual, etc.;
4. correlate information for the purpose of making decisions in respect of fault diagnosis and rectification to maintenance manual level;
5. describe procedures for replacement of components unique to aircraft type.

3. Aircraft Type Training Standard

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

3.1. Theoretical element

(a) Objective

on completion of a theoretical training course, the student shall be able to demonstrate, to the levels identified in the [Appendix I](#) 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
Airplanes with a maximum take-off mass above 30000 kg	
B1.1	150
B1.2	120
B2	100
C	30
Airplanes with a maximum take-off mass equal or less than 30000 kg and above 5700 kg	
B1.1	150
B1.2	120
B2	100
C	30

Category	Hours
Airplanes with a maximum take-off mass of 5700 kg and below	
B1.1	80
B1.2	60
B2	60
C	15
Helicopters	
B1.3	120
B1.4	100
B2	100
C	50

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

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

(d) Justification of course duration:

Training courses carried out in a maintenance training organization approved in accordance with Part-147 and courses directly approved by the LYCAA 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 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 authority by the training needs analysis as described above.

Note 1: for non-pressurized piston engine airplanes below 2.000 kg MTOM the minimum duration can be reduced by fifty percent (50 %).

Note 2: for helicopters in group 2 (as defined in point [66.A.42](#)) the minimum duration can be reduced by thirty percent (30 %).

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 organization in order to meet the minimum attendance time.

(e) Content

As a minimum, the elements in the Syllabus below that are specific to the aircraft type shall be covered. Additional elements introduced due to type variations, technological changes etc., shall also be included.

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

Chapters	Level	Airplanes turbine		Airplanes piston		Helicopters turbine		Helicopters piston		Avionics
		B1	C	B1	C	B1	C	B1	C	
License category		B1	C	B1	C	B1	C	B1	C	B2
Introduction module:										
05 Time limits/ maintenance checks		1	1	1	1	1	1	1	1	1
06 Dimensions/Areas (MTOM, etc.)		1	1	1	1	1	1	1	1	1
07 Lifting and Shoring		1	1	1	1	1	1	1	1	1
08 Levelling and weighing		1	1	1	1	1	1	1	1	1
09 Towing and taxiing		1	1	1	1	1	1	1	1	1
10 Parking/mooring, Storing and Return to Service		1	1	1	1	1	1	1	1	1
11 Placards and Markings		1	1	1	1	1	1	1	1	1
12 Servicing		1	1	1	1	1	1	1	1	1
20 Standard practices — only type particular		1	1	1	1	1	1	1	1	1

Helicopters									
18 Vibration and Noise Analysis (Blade tracking)	--	--	--	--	3	1	3	1	--
60 Standard Practices Rotor	--	--	--	--	3	1	3	1	--
62 Rotors	--	--	--	--	3	1	3	1	1
62A Rotors — Monitoring and indicating	--	--	--	--	3	1	3	1	3
63 Rotor Drives	--	--	--	--	3	1	3	1	1
63A Rotor Drives — Monitoring and indicating	--	--	--	--	3	1	3	1	3
64 Tail Rotor	--	--	--	--	3	1	3	1	1
64A Tail rotor — Monitoring and indicating	--	--	--	--	3	1	3	1	3
65 Tail Rotor Drive	--	--	--	--	3	1	3	1	1
65A Tail Rotor Drive — Monitoring and indicating	--	--	--	--	3	1	3	1	3
66 Folding Blades/Pylon	--	--	--	--	3	1	3	1	--
67 Rotors Flight Control	--	--	--	--	3	1	3	1	--
53 Airframe Structure (Helicopter)	--	--	--	--	3	1	3	1	--
25 Emergency Flotation Equipment	--	--	--	--	3	1	3	1	1
Airframe structures									
51 Standard practices and structures (damage classification assessment & 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 Surfaces (All)	3	1	3	1	--	--	--	--	1
52 Doors	3	1	3	1	--	--	--	--	1

Zonal and Station Identification Systems	1	1	1	1	1	1	1	1	1
Airframe systems									
21 Air Conditioning	3	1	3	1	3	1	3	1	3
21A Air Supply	3	1	3	1	1	3	3	1	2
21B Pressurization	3	1	3	1	3	1	3	1	3
21C Safety and 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
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
27 Flight Controls	3	1	3	1	3	1	3	1	2
27A Sys. Operation: 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	3
31 A 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	1
37 Vacuum	3	1	3	1	3	1	3	1	2
38 Water/Waste	3	1	3	1	--	--	--	--	2
41 Water Ballast	3	1	3	1	--	--	--	--	1
42 Integrated modular avionics	2	1	2	1	2	1	2	1	3
44 Cabin Systems	2	1	2	1	2	1	2	1	3
45 On-Board Maintenance System (or covered in 31)	3	1	3	1	3	1	--	--	3
46 Information Systems	2	1	2	1	2	1	2	1	3
50 Cargo and Accessory Compartments	3	1	3	1	3	1	3	1	1
Turbine Engine									
70 Standard Practices — Engines	3	1	--	--	3	1	--	--	1
70A Constructional arrangement & operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings & Seals, Lubrication Systems)	3	1	--	--	3	1	--	--	1
70B Engine Performance	3	1	--	--	3	1	--	--	1
71 Powerplant	3	1	--	--	3	1	--	--	1
72 Engine Turbine/Turbo Prop/ Ducted Fan/Un ducted fan	3	1	--	--	3	1	--	--	1
73 Engine Fuel and Control	3	1	--	--	3	1	--	--	1
75 Air	3	1	--	--	3	1	--	--	1
76 Engine controls	3	1	--	--	3	1	--	--	1
78 Exhaust	3	1	--	--	3	1	--	--	1
79 Oil	3	1	--	--	3	1	--	--	1
80 Starting	3	1	--	--	3	1	--	--	1
82 Water Injections	3	1	--	--	3	1	--	--	1
83 Accessory Gear Boxes	3	1	--	--	3	1	--	--	1

84 Propulsion Augmentation	3	1	--	--	3	1	--	--	1
73A FADEC	3	1	--	--	3	1	--	--	1
74 Ignition	3	1	--	--	3	1	--	--	1
77 Engine Indication Systems	3	1	--	--	3	1	--	--	1
Propellers									
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 LYCAA.

3.2. Practical element

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.

4. Type Training Examination and Assessment Standard

4.1. Theoretical element examination standard

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

- (a) Format of the examination is of the multi-choice type. Each multi-choice question shall have three (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 ninety (90) seconds per question.
- (b) The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length.
- (c) In numerical questions, the incorrect answers shall correspond to procedural errors such as the use of incorrect sense (+ versus -) or incorrect measurement units. They shall not be mere random numbers.
- (d) The level of examination for each chapter shall be the one defined in point 2 'Aircraft type training levels'. However, the use of a limited number of questions at a lower level is acceptable.
- (e) The examination shall be of the closed book type. No reference material is permitted. An exception will be made for the case of examining a B1 or B2 candidate's ability to interpret technical documents.
- (f) The number of questions shall be at least one (1) question per hour of instruction. The number of questions for each chapter and level shall be proportionate to:
 - (1) the effective training hours spent teaching at that chapter and level,
 - (2) the learning objectives as given by the training needs analysis.
- (g) The LYCAA will assess the number and the level of the questions when approving the course.
- (h) The minimum examination pass mark is seventy five percent (75%). When the type training examination is split in several examinations, each examination shall be passed with at least a seventy-five (75%) mark. In order to be possible to achieve exactly a seventy-five (75%) pass mark, the number of questions in the examination shall be a multiple of four (4).
- (i) Penalty marking (negative points for failed questions) is not to be used.

- (j) 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.

4.2. Practical element assessment standard

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

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

Note 1: 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).

5. Type Examination Standard

Type examination shall be conducted by the LYCAA.

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

- (a) Oral examination questions shall be open.
- (b) Written examination questions shall be essay-type or multi-choice questions.
- (c) Practical assessment shall determine a person's competence to perform a task.
- (d) Examinations shall be on a sample of chapters drawn from point 3 type training/examination syllabus, at the indicated level.
- (e) The incorrect alternatives shall seem equally plausible to anyone ignorant of the subject. All of the alternatives shall be clearly related to the question and of similar vocabulary, grammatical construction and length.
- (f) In numerical questions, the incorrect answers shall correspond to procedural errors such as corrections applied in the wrong sense or incorrect unit conversions. They shall not be mere random numbers.
- (g) The examination shall ensure that the following objectives are met:
 - (1) Properly discuss with confidence the aircraft and its systems.
 - (2) Ensure safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example troubleshooting, repairs, adjustments, replacements, rigging and functional checks such as engine run, etc., if required.

- (3) Correctly use all technical literature and documentation for the aircraft.
 - (4) Correctly use specialist/special tooling and test equipment, perform removal and replacement of components and modules unique to type, including any on-wing maintenance activity.
- (h) The following conditions apply to the examination:
- (1) The maximum number of consecutive attempts is three. Further sets of three attempts are allowed with a one (1) year waiting period between sets. A waiting period of thirty (30) days is required after the first failed attempt within one set, and a waiting period of sixty (60) days is required after the second failed attempt.

The applicant shall confirm in writing to the LYCAA the number and dates of attempts during the last year and where these attempts took place. The LYCAA is responsible for checking the number of attempts within the applicable timeframes.

- (2) The type examination shall be passed and the required practical experience shall be completed within the 3 years preceding the application for the rating endorsement on the aircraft maintenance license.
- (i) Type examination shall be performed with at least one examiner present. The examiner(s) shall not have been involved in the applicant's training. A written and signed report shall be made by the examiner(s) to explain why the candidate has passed or failed.

Note 1: for the purpose of this point 5, a 'chapter' means each one of the rows preceded by a number in the tables contained in points 3.1(e) and 3.2(b).

6. On the Job Training

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

It shall be conducted at and under the control of a maintenance organization 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 (3) years preceding the application for a type rating endorsement.

(a) Objective

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

(b) Content

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

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

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

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

- (1) Name of Trainee;
- (2) Date of Birth;
- (3) Approved Maintenance Organization;
- (4) Location;
- (5) Name of supervisor(s) and assessor, (including 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 authority, demonstration of the OJT shall consist of (i) detailed worksheets/logbook and (ii) a compliance report demonstrating how the OJT meets the requirement of this Part.

AMC TO APPENDIX II 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 II 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 practices 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 A to AMC to CAR -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 PARAGRAPHS 1(b), 3.2 AND 4.2 OF APPENDIX II 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 II to Part-66.
3. The duration of the practical training should ensure that the content of training required by paragraph 3.2 of Appendix II to Part-66 is completed.

Nevertheless, for airplanes with a MTOM equal or above 30.000 kg, the duration for the practical element of a type rating training course should not be less than two weeks unless a shorter duration meeting the objectives of the training and taking into account pedagogical aspects (maximum duration per day) is justified to the authority.

4. The organization 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 II 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 authorized to do so by the organization.

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

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

AMC TO PARAGRAPH 1(c) OF APPENDIX II 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 A to AMC to Part-66](#)) for the purpose of type rating endorsement on the aircraft maintenance license.

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

AMC TO POINT 3.1(d) OF APPENDIX II 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 II to Part-66, has been determined based on:
 - generic categories of aircraft and minimum standard equipment fit
 - the estimated average duration of standard courses.
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 II to Part-66.
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 authority should be performed on a case-by-case basis appropriate to the aircraft type. For example, while it would be exceptional for a theoretical course for a 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 II and associated AMCs.
- (c) The TNA should set-up the course content considering the Appendix II objectives for each level of training and the prescribed topics in the theoretical element table contained in paragraph 3.1 of Part-66 Appendix II.
- (d) For each chapter described in the theoretical element table contained in paragraph 3.1 of Part-66 Appendix II, 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:
 - i. Consideration should be given to the following typical activities:
 - Activation/reactivation;
 - Removal/Installation;
 - Testing;
 - Servicing;
 - Inspection, check and repairs;
 - Troubleshooting / diagnosis.
 - ii. 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:
 - Frequency of the task;
 - Human factor issues associated to the task;
 - Difficulty of the task;
 - Criticality and safety impact of the task;
 - In-service experience;
 - Novel or unusual design features;
 - Similarities with other aircraft types;
 - Special tests and tools/equipment.
 - iii. It is acceptable to follow an approach based on:
 - Tasks or groups of tasks, or,
 - Systems or subsystems or components.

(g) The TNA should:

- i. Identify the learning objectives for each task, group of tasks, system, subsystem or component;
- ii. Associate the identified tasks to be trained to the regulatory requirements (table in Paragraph 3.1 of Appendix II to Part-66);
- iii. Organize the training into modules in a logical sequence (adequate combination of chapters as defined in Appendix C of CAR-66);
- iv. Determine the sequence of learning (within a lesson and for the whole syllabus);
- v. Identify the scope of information and level of detail with regard to the minimum standard to which the topics of the TNA should be taught according to the set-up objectives.
- vi. Address the following:
 - Description of each system/component including the structure (where applicable);
 - System/component operation taking into account:
 - o Complexity of the system (e.g., the need of further break down into subsystems, etc.);
 - o Design specifics which may require more detailed presentation or may contribute to maintenance errors;
 - o Normal and emergency functioning;
 - o Troubleshooting;
 - o Interpretation of indications and malfunctions;
 - o Use of maintenance publications;
 - o Identification of special tools and equipment required for servicing and maintaining the aircraft;
 - o Maintenance Practices;
 - o 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 six (6) hours. A training hour means sixty (60) minutes of tuition excluding any breaks, examination, revision, preparation and aircraft visit. In exceptional cases, the LYCAA 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 ninety percent (90%) of the tuition hours of the theoretical training course. Additional training may be provided by the training organization 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 organization 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.

AMC TO SECTION 5 OF APPENDIX II TO PART-66 'Aircraft type training and examination standard, on-the-job training'

Type Examination Standard

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

AMC TO SECTION 6 OF APPENDIX II TO PART-66 'Aircraft type training and examination standard, on-the-job training'**On-the-Job Training (OJT)**

1. 'A maintenance organization appropriately approved for the maintenance of the particular aircraft type' means a Part-145 or Part M. Subpart F approved maintenance organization 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 fifty percent (50%) of the tasks contained in [Appendix B to AMC to Part-66](#). Some tasks should be selected from each paragraph of the [Appendix B](#) list. Tasks should be selected among those applicable to the type of aircraft and license (sub)category applied for. Other tasks than those in the [Appendix B](#) 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 fifty percent (50%) of the required OJT may be undertaken before the aircraft theoretical type training starts.
6. The organization 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 program in the approved maintenance organization and the role of the supervisor(s), the following should be considered:
 - (a) 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.
 - (b) 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 behavior in the maintenance environment.
 - (c) 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.
 - (d) The supervisor(s) should countersign the tasks and release the maintenance tasks as the trainee is still not qualified to do so.
 - (e) The supervisor(s) should therefore:
 - i. have certifying staff or support staff privileges relevant to the OJT tasks;

- ii. be for the selected tasks;
 - iii. be safety-orientated;
 - iv. 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 re-orientate the training, reporting, etc.);
 - v. be designated by the approved maintenance organization to carry out the supervision.
8. Regarding the assessor, the following should be considered:
 - (a) The function of the assessor, as described in [Appendix II 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.
 - (b) In [Appendix II 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 authorized to do so by the organization. Further guidance about the assessment and the designated assessors is provided in [Appendix C to AMC to Part-66](#).
9. The procedures for OJT should be included into the Exposition Manual of the approved maintenance organization. However, since these procedures in the Exposition Manual are approved by the authority of the maintenance organization, and providing training is not one of the privileges of a maintenance organization, they can only be used when the licensing authority is the same as the authority of the maintenance organization. In other cases, it is up to the licensing authority to decide whether it accepts such procedures for the purpose of approving the OJT.

Appendix III. Experience Requirements for Extending a Part-66 AMEL

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

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

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

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

Appendix IV. Aircraft Maintenance Engineer License (AMEL)

Specifications for aircraft maintenance engineer license

1. Aircraft Maintenance Engineer License (AMEL) issued by the LYCAA in accordance with the provisions of this Part-66 shall conform to the following specifications:
2. A license issued shall ensure that other States are able to easily determine the license privileges and validity of ratings.
3. The following details shall appear on the license with the roman numerals as specified below:
 - (a) I. STATE, AUTHORITY NAME & LOGO
 - (b) II. Part-66 AIRCRAFT MAINTENANCE ENGINEER LICENSE
 - (c) III. License number
 - (d) IVa. Full name of holder
 - (e) IVb. Date and place of birth
 - (f) V. Address of holder
 - (g) VI. Nationality of holder
 - (h) VII. Signature of holder
 - (i) VIII. Conditions
 - (j) IX. Part-66 categories
 - (k) X. Signature of issuing officer, date of issue and validity
 - (l) XI. Seal or stamp of issuing authority
 - (m) XII. Part-66 ratings
 - (n) XIII. Part-66 limitations
4. Language: the license is issued in English.

APPENDICES TO AMCS TO PART-66

Appendix A. Aircraft Type Ratings for Part-66 AMEL

The following aircraft type ratings should be used to ensure a common standard.

Notes on TR endorsement covering several models/variants:

The endorsement of a type rating (TR) on the aircraft maintenance engineer license (AMEL), covering several models/variants, does not automatically imply that the AMEL holder has acquired the appropriate knowledge on each model/variant. The TR course received or the experience the AMEL holder has gained, may have been limited to one or several model(s)/variant(s) but not to all models/variants.

To demonstrate adequate competence on the relevant model(s)/variant(s), the AMEL holder and/or the maintenance organization where the AMEL holder is contracted/employed, are responsible to verify whether the model/variant has been adequately covered by the TR course or gained experience.

Further explanation can be found in [AMC 66.20\(b\)3](#) and Part-145.

Notes on when the licenses should be modified:

When a modification is introduced to an aircraft type rating or to an engine designation in the rating, which affect licenses already issued, the ratings on the AMELs may be modified at the next renewal or when the license is reissued, unless there is an urgent reason to modify the license.

Appendix B. Aircraft Type practical experience and OJT - 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.
- 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.
- Towing 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

- Analyze helicopter vibration problem.
- Analyze noise spectrum.
- Analyze engine vibration.

Air Conditioning

- Replace combustion heater.
- Replace flow control valve.
- Replace outflow valve.
- Replace safety valve.
- Replace vapor cycle unit.
- Replace air cycle unit.
- Replace cabin blower.
- Replace heat exchanger.
- Replace pressurization controller.
- Clean outflow valves.
- Deactivate/reactivate cargo isolation valve.
- Deactivate/reactivate avionics ventilation components.
- Check operation of air conditioning/heating system.
- Check operation of pressurization 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.
- 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.
- Extending/retracting flaps & slats.
- Replace horizontal stabilizer.
- 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.
- Pressurization/depressurization 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 unlock / down lock 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 navigation 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 desiccator.
- 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.
- Fiber glass repair.
- Wooden repair.
- Fabric repair.
- Recover fabric control surface.
- Treat corrosion.
- Apply protective treatment.

Doors

- Inspect passenger door.
- 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.
- Remove and install emergency exit.

- Inspect cargo door.

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.
- 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/borescope 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 carburetor/injector.
- Adjust carburetor/injector.
- Clean injector nozzles.

- Replace primer line.
- Check carburetor 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-engine).
- 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 gearboxes

- 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 shutdown test.
- Operational test of the APU.

Appendix C. Evaluation of the Competence: assessment and assessors

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

(a) 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:

- (1) Knowledge;
- (2) Skills;
- (3) 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:

- i. 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;
- ii. 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;
- iii. 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:

- i. Environment awareness (act safely, apply safety precautions and prevent dangerous situations);
- ii. Systems integration (demonstrate understanding of aircraft systems interaction – identify, describe, explain, plan, execute);
- iii. Knowledge and understanding of areas requiring special emphasis or novelty (areas peculiar to the aircraft type, domains not covered by Part-66 Appendix A, practical training elements that cannot be imparted through simulation devices, etc.);
- iv. Using reports and indications (the ability to read and interpret);
- v. Aircraft documentation finding and handling (identify the appropriate aircraft documentation, navigate, execute and obey the prescribed maintenance procedures);

- vi. Perform maintenance actions (demonstrate safe handling of aircraft, engines, components and tools);
- vii. Aircraft final/close-up and report (apply close up, initiate appropriate actions/follow-up/records of testing, establish and sign maintenance records/logbooks).

(b) 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, organized 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:

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

The assessment may be:

- i. 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);
- ii. 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:

- i. develop the self-assessment habits;

- ii. 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 organization's approval.

(c) Who should assess

In order to qualify, the assessor should be proficient and have sufficient experience or knowledge in:

- i. human performance and safety culture;
- ii. the aircraft type (necessary to have the certifying staff privileges in case of CRS issuances);
- iii. training/coaching/testing skills;
- iv. instructional tools to use;
- v. Understand the objective and the content of the practical elements of the training that is being assessed;
- vi. 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.);
- vii. Be ultimately designated by the organization to carry out the assessment.

The roles may be combined for:

- i. the assessor and the instructor for the practical elements of the Type Rating Training, or;
- ii. 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 organization), it is recommended to split the roles (two different persons) in order to avoid any conflicts of interests.