

Proposal for a
COMMISSION REGULATION (EC) No .../...
of [...]

**amending Commission Regulation (EC) No 2042/2003 on the continuing
airworthiness of aircraft and aeronautical products, parts and appliances, and on the
approval of organisations and personnel involved in these tasks**

(Text with EEA relevance)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC¹ ("the Basic Regulation"), and in particular Articles 5 and 6 thereof,

Having regard to Commission Regulation (EC) No 2042/2003 of 20 November 2003 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks²,

Whereas:

- (1) Regulation (EC) No 2042/2003 already establishes in its Annex III (Part-66) a licensing system for certifying staff;
- (2) Feedback received from stakeholders and national authorities indicated a need to review this regulation in relation to the privileges of B1 and B2 aircraft maintenance licences, type and group ratings and type training;
- (3) The measures provided for in this Regulation are based on the opinion issued by the Agency³ in accordance with Articles 17(2)(b) and 19(1) of the Basic Regulation;
- (4) The measures provided for in this Regulation are in accordance with the opinion⁴ of the European Aviation Safety Agency Committee established by Article 65 of the Basic Regulation;
- (5) The Commission Regulation (EC) No 2042/2003 should therefore be amended accordingly;

HAS ADOPTED THIS REGULATION:

Article 1

Commission Regulation (EC) No 2042/2003 is amended as follows:

- 1) In Article 7 the following paragraphs 7, 8 and 9 are added:

¹ OJ L 79, 19.03.2008, p.1.

² OJ L 315, 28.11.2003, p. 1. Regulation as last amended by Commission Regulation (EC) No 1056/2008 of 27 October 2008 (OJ L 283, 28.10.2008).

³ Opinion 05/2009.

⁴ (To be issued).

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7. Reserved.

8. Reserved.

9.

- (a) Persons holding a valid Part-66 licence in a given category/sub-category before **(15 months after the date of entry into force)** shall automatically obtain the privileges described in the amended point 66.A.20(a) corresponding to such a category/sub-category. The basic knowledge requirements corresponding to these new privileges shall be considered as met for the purpose of extending such licence to a new category/sub-category.
- (b) Amendments introduced in Appendix I and Appendix II to Part-66 shall apply as of **(15 months after the date of entry into force)**, except as provided in paragraph (c) below.
- (c) Applications for Part-147 approval of basic training courses, submitted to the competent authority after **(date of entry into force)**, shall be subject to the new requirements introduced in Appendix I and Appendix II of Part-66 by this amending Regulation.
- (d) Organisations applying for Part-147 approval of new type training courses may elect not to apply this amending Regulation until **(15 months after the date of entry into force)**. Partial implementation of selective items of this amending Regulation is not allowed.
- (e) The provisions of paragraph (d) above shall also apply to organisations applying to the competent authority for approval of type training courses not imparted by Part-147 approved maintenance training organisations.
- (f) Type training courses approved in accordance with the requirements applicable prior to the entry into force of this amending Regulation can only be imparted until **(15 months after the date of entry into force)**. After this date, these courses must comply with the requirements of this amending Regulation, except that there is no need to produce a training needs analysis for courses approved before this date if their duration is already above the minimum duration described in Appendix III to Part-66.
- (g) Certificates for type training courses specified in paragraph (f) above, which have been issued not later than **(15 months after the date of entry into force)**, shall be considered as issued in accordance with this amending Regulation.
- (h) By derogation to paragraph 66.A.45, for group 2 and group 3 aircraft, the holder of a category B1, B2 or C aircraft maintenance licence issued, last renewed or last amended prior to **(date of entry into force)** may continue to exercise certification privileges when the aircraft maintenance licence is endorsed with the appropriate aircraft type rating, full group rating or manufacturer group rating, within the groups listed below:
- (1) for category B1 or C:
- helicopter piston engine
 - helicopter turbine engine
 - aeroplane single piston engine — metal structure
 - aeroplane multiple piston engines — metal structure

- aeroplane single piston engine — wooden structure
- aeroplane multiple piston engines — wooden structure
- aeroplane single piston engine — composite structure
- aeroplane multiple piston engines — composite structure
- aeroplane turbine — single engine
- aeroplane turbine — multiple engine

(2) for category B2 or C:

- aeroplane
- helicopter

These aircraft maintenance licences shall have the full group ratings and manufacturer group ratings converted to the new ratings defined in 66.A.45 following the procedure described in 66.B.125 at the first amendment or renewal of the licence performed after **(date of entry into force)**. Individual aircraft type ratings already endorsed on these licences shall remain on the licence and shall not be converted to the new ratings unless the licence holder meets the requirements defined in 66.A.45 for the corresponding group/sub-group ratings.

Article 2

Annexes II (Part-145), III (Part-66) and IV (Part-147) to Regulation (EC) No 2042/2003 are amended in accordance with the Annex to this Regulation:

Article 3 *Entry into force*

This Regulation shall enter into force 90 days after its publication in the *Official Journal of the European Union*.

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

Done at Brussels,

For the Commission

Member of the Commission

Annex

The Annexes to Regulation (EC) No 2042/2003 are amended as follows:

A) Annex II (Part-145) to Regulation (EC) No 2042/2003 is amended as follows:

1) In point 145.A.30, paragraph (g) is amended as follows:

145.A.30 Personnel requirements

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(g) Any organisation maintaining aircraft, except where stated otherwise in paragraph (j), shall in the case of aircraft line maintenance, have appropriate aircraft type rated certifying staff qualified as category B1 and B2, as appropriate, in accordance with Part-66 and 145.A.35.

In addition such organisations may also use appropriately task trained certifying staff holding the privileges described in 66.A.20(a)(1) and 66.A.20(a)(3)(ii) and qualified as ~~category A~~ in accordance with Part-66 and 145.A.35 to carry out minor scheduled line maintenance and simple defect rectification. The availability of such ~~category A~~ certifying staff shall not replace the need for Part-66 category B1 and B2 certifying staff to support them ~~category A certifying staff~~. However, such Part-66 category B1 and B2 staff need not always be present at the line station during minor scheduled line maintenance or simple defect rectification.

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2) Appendix IV is amended as follows:

Appendix IV

Conditions for the use of staff not qualified to Part-66 in accordance with 145A.30(j)1 and 2

1. Certifying staff in compliance with **all** the following conditions will meet the intent of 145.A.30(j)(1) and (2):

- (a) The person shall hold a licence or a certifying staff authorisation issued under the country's National regulations in compliance with ICAO Annex 1.
- (b) The scope of work of the person shall not exceed the scope of work defined by the National licence/certifying staff authorisation.
- (c) The person shall demonstrate he has received training on human factors and airworthiness regulations as detailed in Part-66.
- (d) The person shall demonstrate five years maintenance experience for line maintenance certifying staff and eight years for base maintenance certifying staff. However, those persons whose authorised tasks do not exceed those of a Part-66 category A certifying staff, need to demonstrate three years maintenance experience only.
- (e) Line maintenance certifying staff and base maintenance support staff shall receive type training and pass examination at **a the category B1 or B2 level corresponding to, as applicable, of Part-66 Appendix III level-3** for every aircraft type on which they are authorised to make certification.

However those persons whose authorised tasks do not exceed those of a Part-66 category A certifying staff may receive task training in lieu of complete type training.

- (f) Base maintenance certifying staff must receive type training and pass examination at **a the category C level corresponding to at least of Part-66 Appendix III level-1** for every aircraft type on which they are authorised to make certification, **except that for**

the first aircraft type, the training and examination shall be at the category B1 or B2 level of Part-66 Appendix III.

2.

B) Annex III (Part-66) to Regulation (EC) No 2042/2003 is amended as follows:

3) Point 66.A.20 is amended as follows:

66.A.20 Privileges

(a) Subject to compliance with paragraph (b), the following privileges shall apply:

1. A category A aircraft maintenance licence permits the holder to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the authorisation. The certification privileges shall be restricted to work that the licence holder has personally performed in a Part-145 organisation.
2. A category B1 aircraft maintenance licence shall permit the holder to issue certificates of release to service and to act as B1 support staff for following maintenance performed on, including aircraft structure, powerplant and mechanical and electrical systems. Replacement of avionic line replaceable units, Certification of work on avionic systems requiring only simple tests to prove their serviceability, shall also be included in the privileges. Troubleshooting on avionic systems is not allowed. Category B1 shall automatically include the appropriate A subcategory.
3. A category B2 aircraft maintenance licence shall permit the holder:
 - (i) to issue certificates of release to service and to act as B2 support staff for following:
 - maintenance performed on avionic and electrical systems; and
 - electrical and avionics tasks within powerplant and mechanical systems, requiring simple tests to prove their serviceability; and
 - (ii) for cases not already covered by paragraph 3(i) above, 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 authorisation. This certification privilege shall be restricted to work that the licence holder has personally performed in a Part-145 organisation, and limited to ratings already endorsed in the B2 licence.

The category B2 licence does not include any A subcategory.

4. A category C aircraft maintenance licence shall permit the holder to issue certificates of release to service following base maintenance on aircraft. The privileges apply to the aircraft in its entirety in a Part-145 organisation.
- (b) The holder of an aircraft maintenance licence may not exercise certification privileges unless:
1. In compliance with the applicable requirements of Part-M and/or Part-145.
 2. In the preceding two-year period he/she has, either had six months of maintenance experience in accordance with the privileges granted by the aircraft maintenance licence or, met the provision for the issue of the appropriate privileges.
 3. He/she has the adequate competence to certify maintenance on the corresponding aircraft.
 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.

4) A new point 66.A.42 is added as follows:

66.A.42 Aircraft groups

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

- Group 1: all complex motor-powered aircraft and those non complex motor-powered aircraft requiring an aircraft type rating. A non complex motor-powered aircraft requires an aircraft type rating when defined by the Agency.
- Group 2: aircraft other than those in Group 1, which belong to the following subgroups:
 - sub-group 2a: single turbo-propeller engine aeroplanes
 - sub-group 2b: single turbine engine helicopters
 - sub-group 2c: single piston engine helicopters
- Group 3: piston engine aeroplanes other than those in Group 1.

5) Point 66.A.45 is replaced as follows:

66.A.45 Type/task training, and ratings and rating limitations

- (a) The holder of a category A aircraft maintenance licence may only exercise certification privileges on a specific aircraft type following the satisfactory completion of the relevant category A aircraft task training carried out by an appropriately approved Part-145 or Part-147 organisation. The training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment carried out by an appropriately approved Part-145 or Part-147 organisation.
- (b) The holder of a category B2 aircraft maintenance licence may only exercise the certification privileges described in 66.A.20(a)(3)(ii) following the satisfactory completion of the relevant category A aircraft task training and six months of documented practical experience covering the scope of the authorisation that will be issued. The task training shall include practical hands on training and theoretical training as appropriate for each task authorised. Satisfactory completion of training shall be demonstrated by an examination or by workplace assessment. Task training and examination/assessment shall be performed by the Part-145 organisation issuing the certifying staff authorisation. The practical experience shall be also obtained within such Part-145 organisation.
- (c) For group 1 aircraft, the holder of a category B1, B2 or C aircraft maintenance licence shall only exercise certification privileges on a specific aircraft type when the aircraft maintenance licence is endorsed with the appropriate aircraft type rating.

The Agency shall be responsible for defining what airframe/engine combinations are included in each particular aircraft type rating.

- (d) For group 2 aircraft, the holder of a category B1, B2 or C aircraft maintenance licence shall only exercise certification privileges on a specific aircraft type when the aircraft maintenance licence is either:
- endorsed with the appropriate aircraft type rating, or
 - endorsed with the appropriate manufacturer sub-group or full sub-group rating.

The Agency shall be responsible for defining what airframe/engine combinations are included in each particular aircraft type rating.

- (e) For group 3 aircraft, the holder of a category B1, B2 or C aircraft maintenance licence shall only exercise certification privileges on a specific aircraft type when the aircraft maintenance licence is either:
- endorsed with the appropriate aircraft type rating, or
 - endorsed with the full group 3 rating.

The Agency shall be responsible for defining what airframe/engine combinations are included in each particular aircraft type rating.

- (f) Aircraft type ratings shall be granted as follows:
1. For group 1 aircraft, after satisfactory completion of the relevant category B1, B2 or C aircraft type training described in 66.A.45(j) and, where applicable, after satisfactory completion of the corresponding On the Job Training described in 66.A.45(k)
 2. For group 2 and group 3 aircraft, after either:
 - satisfactory completion of the relevant category B1, B2 or C aircraft type training described in 66.A.45(j) and, where applicable, after satisfactory completion of the corresponding On the Job Training described in 66.A.45(k), or
 - satisfactory completion of the relevant category B1, B2 or C aircraft type examination described in 66.A.45(l) and, in the case of B1 and B2 category, demonstration of practical experience on the aircraft type as described in 66.A.45(l). In the case of a category C rating, for a person qualified by holding an academic degree as specified in 66.A.30(a)(5), the first relevant aircraft type examination shall be at the category B1 or B2 level.

- (g) For group 2 aircraft:
1. manufacturer sub-group ratings for category B1 and C licence holders shall be granted after complying with the aircraft type rating requirements of at least two aircraft types from the same manufacturer which combined are representative of the applicable manufacturer sub-group,
 2. full sub-group ratings for category B1 and C licence holders shall be granted after complying with the aircraft type rating requirements of at least three aircraft types from different manufacturers which combined are representative of the applicable sub-group,
 3. manufacturer sub-groups and full sub-group ratings for category B2 licence holders shall be granted following demonstration of practical experience which shall include a representative cross section of maintenance activities relevant to the licence category and to the applicable aircraft sub-group.

For category B2 and C licence holders:

- full sub-group 2a automatically includes full group 3,
- full sub-group 2b automatically includes full sub-group 2c.

- (h) For group 3 aircraft, full group rating for category B1, B2 and C licence holders shall be granted following demonstration of practical experience which shall include a representative cross section of maintenance activities relevant to the licence category and to the group 3.

- (i) Unless the applicant provides evidence of appropriate experience, the group 3 rating granted to B1 licence holders as per above paragraph (h), is subject to the following limitations, which shall be endorsed on the licence:

- pressurized aeroplanes
- metal structure aeroplanes
- composite structure aeroplanes
- wooden structure aeroplanes
- metal tubing and fabric aeroplanes

These limitations are exclusions from the certification privileges and affect the aeroplane in its entirety. Nevertheless, the holder of a B1 aircraft maintenance licence with a group 3

rating is also entitled to issue certificates of release to service for M.A.803(b) Pilot-owner maintenance tasks on all group 3 aeroplanes, regardless of the limitations endorsed on the licence.

Limitations shall be removed following demonstration of appropriate experience or after a satisfactory practical assessment performed by the competent authority.

(j) The aircraft type training required in 66.A.45(f) shall consist of:

- theoretical training and examination, and
- except for the category C ratings, practical training and assessment

1. Theoretical training and examination shall be conducted by appropriately approved Part-147 organisations or as directly approved by the competent authority. Theoretical training and examination shall comply with Appendix III to this Part, except as permitted by the differences training described in paragraph 66.A.45(j)3. In the case of a category C person qualified by holding an academic degree as specified in 66.A.30(a)(5), the first relevant aircraft type theoretical training shall be at the category B1 or B2 level.

2. Practical training and assessment

(i) Practical training shall include a representative cross section of maintenance activities relevant to the aircraft type. The practical training shall comply with Appendix III to this Part, except as permitted by the differences training described in paragraph 66.A.45(j)3.

(ii) Practical training and assessment shall be conducted by appropriately approved Part-147 organisations or as directly approved by the competent authority.

(iii) Practical training and assessment can be performed by demonstrations using equipment, components, simulators, other training devices or aircraft.

(iv) Practical training shall be assessed by designated assessors appropriately qualified.

3. Differences training

(i) Differences training is the training required in order to cover the differences between two different aircraft type ratings of the same manufacturer as determined by the Agency.

(ii) Differences training has to be defined on a case to case basis taking into account Appendix III in respect of both theoretical and practical elements of type rating training.

(iii) A type rating shall only be endorsed on a licence after differences training when the applicant also complies with one of the following conditions:

- having already endorsed on the licence the aircraft type rating from which the differences are being identified, or
- having completed the type training requirements for the aircraft from which the differences are being identified.

(k) On the Job Training (OJT)

1. In addition to the theoretical and practical training required by 66.A.45(j), the applicant must complete OJT for the endorsement of the first type rating within a given aircraft maintenance licence category/sub-category.

2. OJT shall be conducted at and under the control of a maintenance organisation appropriately approved for the maintenance of the particular aircraft type. The OJT programme shall be approved by the competent authority who has issued the licence.
3. OJT shall be assessed by designated assessors appropriately qualified.
4. OJT shall comply with Appendix III to this Part.

(l) The aircraft type examination and aircraft type practical experience required in 66.A.45(f) shall meet the following criteria:

1. The examination shall comply with Appendix III to this Part. The examination shall be conducted by training organisations appropriately approved under Part-147 or by the competent authority.
2. Aircraft type practical experience shall include a representative cross section of maintenance activities relevant to the category.

6) 66.B.100 is amended as follows:

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

- (a) On receipt of EASA Form 19 and any supporting documentation, the competent authority shall verify EASA Form 19 for completeness and ensure that the experience claimed meets the requirement of this Part.
- (b) The competent authority shall verify an applicant's examination status and/or confirm the validity of any credits to ensure that all required modules of Appendix I have been met as required by this Part.
- (c) When having verified the identity and date of birth of the applicant and being satisfied that the applicant meets the standards of knowledge and experience required by this Part, the competent authority shall issue the relevant aircraft maintenance licence to the applicant. The same information shall be kept on competent authority file records.
- (d) In the case where aircraft types or groups are endorsed at the time of the issuance of the first aircraft maintenance licence, the application shall ensure compliance with 66.B.115.

7) 66.B.115 is amended as follows:

66.B.115 Procedure for the amendment of an aircraft maintenance licence to include an aircraft type or group

1. On receipt of a satisfactory EASA Form 19 and any supporting documentation demonstrating compliance with the applicable type rating and/or group rating requirements and the accompanying aircraft maintenance licence, the competent authority shall either endorse the applicant's aircraft maintenance licence with the aircraft type or group or reissue the said licence to include the aircraft type or group. The competent authority records shall be amended accordingly.
2. In the case where the complete type training is not conducted by an approved Part-147 organisation, the competent authority must be satisfied that the type training requirements are complied with before the type rating is issued.
3. In the case of second or subsequent type ratings within a licence category/sub-category, if all the elements of the training have been performed within a single Part-147 organisation, the On the Job Training is not required. In such a case, the aircraft type shall be endorsed based on the Part-147 Certificate of Recognition.

4. Where the aircraft type training is covered by more than one course, airframe and/or engine courses and/or avionics/electrical course, the competent authority shall be satisfied prior to the type rating endorsement that the content and length of the courses fully satisfy the scope of the licence category and that the interface areas have been addressed.
 5. In the case of differences training for a similar type, the competent authority shall be satisfied that the applicant's previous qualification, supplemented by either a Part-147 course or a course directly approved by the competent authority, is acceptable for type rating endorsement.
 6. Determination of compliance with the practical elements shall be demonstrated by the provision of detailed practical training records or a logbook provided by an appropriate approved maintenance organisation or, where available, by a Part-147 training certificate covering the practical training element.
 7. Aircraft type endorsement shall use the aircraft type ratings as specified by the Agency.
- 8) A new 66.B.125 is added as follows:

66.B.125 Procedure for the renewal/amendment of licences described in Article 7, paragraph 9(h) of EC2042/2003.

The conversion of licences referred to in Article 7.9(h) of this regulation to the ratings described in 66.A.45 shall be performed in accordance with the following conversion table:

1) for category B1 or C:

— helicopter piston engine, full group:

- Converted to "full sub-group 2c" plus the aircraft type ratings for those single piston engine helicopters which are in group 1

— helicopter piston engine, manufacturer group:

- Converted to the corresponding "manufacturer sub-group 2c" plus the aircraft type ratings for those single piston engine helicopters of that manufacturer which are in group 1

— helicopter turbine engine, full group:

- Converted to "full sub-group 2b" plus the aircraft type ratings for those single turbine engine helicopters which are in group 1

— helicopter turbine engine, manufacturer group:

- Converted to the corresponding "manufacturer sub-group 2b" plus the aircraft type ratings for those single turbine engine helicopters of that manufacturer which are in group 1

— aeroplane single piston engine — metal structure, either full group or manufacturer group:

- Converted to "full group 3". For the B1 licence the following limitations must be included: pressurized aeroplanes, composite structure aeroplanes, wooden structure aeroplanes and metal tubing and fabric aeroplanes

— aeroplane multiple piston engines — metal structure, either full group or manufacturer group:

- Converted to "full group 3". For the B1 licence the following limitations must be included: pressurized aeroplanes, composite structure aeroplanes, wooden structure aeroplanes and metal tubing and fabric aeroplanes

- aeroplane single piston engine — wooden structure, either full group or manufacturer group:
 - Converted to “full group 3”. For the B1 licence the following limitations must be included: pressurized aeroplanes, metal structure aeroplanes, composite structure aeroplanes and metal tubing and fabric aeroplanes
- aeroplane multiple piston engine — wooden structure, either full group or manufacturer group:
 - Converted to “full group 3”. For the B1 licence the following limitations must be included: pressurized aeroplanes, metal structure aeroplanes, composite structure aeroplanes and metal tubing and fabric aeroplanes
- aeroplane single piston engine — composite structure, either full group or manufacturer group:
 - Converted to “full group 3”. For the B1 licence the following limitations must be included: pressurized aeroplanes, metal structure aeroplanes, wooden structure aeroplanes and metal tubing and fabric aeroplanes
- aeroplane multiple piston engine — composite structure, either full group or manufacturer group:
 - Converted to “full group 3”. For the B1 licence the following limitations must be included: pressurized aeroplanes, metal structure aeroplanes, wooden structure aeroplanes and metal tubing and fabric aeroplanes
- aeroplane turbine — single engine, full group:
 - Converted to “full sub-group 2a” plus the aircraft type ratings for those single turboprop aeroplanes which did not require an aircraft type rating in the previous system and are in group 1
- aeroplane turbine — single engine, manufacturer group:
 - Converted to the corresponding “manufacturer sub-group 2a” plus the aircraft type ratings for those single turboprop aeroplanes of that manufacturer which did not require an aircraft type rating in the previous system and are in group 1
- aeroplane turbine — multiple engine, full group:
 - Converted to the aircraft type ratings for those multiple turboprop aeroplanes which did not require an aircraft type rating in the previous system.

(2) for category B2:

- aeroplane
 - Converted to include “full sub-group 2a” and “full group 3”, plus the aircraft type ratings for those aeroplanes which did not require an aircraft type rating in the previous system and are in group 1
- helicopter
 - Converted to include “full sub-groups 2b and 2c”, plus the aircraft type ratings for those helicopters which did not require an aircraft type rating in the previous system and are in group 1

(3) for category C:

- aeroplane
 - Converted to include “full sub-group 2a” and “full group 3”, plus the aircraft type ratings for those aeroplanes which did not require an aircraft type rating in the previous system and are in group 1

— helicopter

Converted to include “full sub-groups 2b and 2c”, plus the aircraft type ratings for those helicopters which did not require an aircraft type rating in the previous system and are in group 1

If the licence was subject to technical limitations following the 66.A.70 conversion process, these limitations shall remain on the licence, unless they are removed under the conditions defined in the 66.B.300 conversion report.

9) A new 66.B.130 is added as follows:

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

According to Part-66.A.45 the competent authority may approve aircraft type training not conducted by a Part-147 organisation. In such a case the competent authority shall have a procedure in place to ensure the approved aircraft type training complies with Appendix III of this Part.

10) Appendix I is amended as follows:

Appendix I **Basic Knowledge Requirements**

MODULE 5. DIGITAL TECHNIQUES/ELECTRONIC INSTRUMENT SYSTEMS

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	LEVEL			
	A	B1-1 B1-3	B1-2 B1-4	B2
5.4 Data Buses Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications. Aircraft Network/Ethernet	-	2	-	2

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	LEVEL			
	A	B1-1 B1-3	B1-2 B1-4	B2
5.15 Typical Electronic/Digital Aircraft Systems	-	2	2	2

	LEVEL			
	A	B1-1 B1-3	B1-2 B1-4	B2
General arrangement of typical electronic/digital aircraft systems and associated BITE (Built In Test Equipment) testing such as: ACARS-ARINC Communication and Addressing and Reporting System ECAM-Electronic Centralised Aircraft Monitoring EFIS-Electronic Flight Instrument System EICAS-Engine Indication and Crew Alerting System FBW-Fly by Wire FMS-Flight Management System GPS-Global Positioning System IRS-Inertial Reference System TCAS-Traffic Alert Collision Avoidance System Integrated Modular Avionics Cabin Systems Information Systems				

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

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	Level		
	A1	B1.1	B2
11.5.1. Instrument Systems (ATA31) Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems; Glass cockpit; Other aircraft system indication.	1	2	-

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	Level		
	A1	B1.1	B2
11.11 Hydraulic Power (ATA29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electrical, mechanical, pneumatic; Emergency pressure generation;	1	3	-

Filters: Pressure control; Power distribution; Indication and warning systems; Interface with other systems.			
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	Level		
	A1	B1.1	B2
11.13 Landing Gear (ATA32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering; Air-ground sensing.	2	3	-

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	Level		
	A1	B1.1	B2
11.19. Integrated Modular Avionics (ATA42) <i>Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others:</i> <ul style="list-style-type: none"> Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc. Core System; Network Components;	1	2	-
11.20. Cabin Systems (ATA44) <i>The units and components which furnish a means of entertaining the passengers and providing communication within the aircraft (Cabin Intercommunication Data System) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data, music and video transmissions.</i> <i>The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Flight Attendant Panels.</i> <i>The Cabin Network Service typically consists on a server,</i>	1	2	-

<p><i>typically interfacing with, among others, the following systems:</i></p> <ul style="list-style-type: none"> • <i>Data/Radio Communication, In-Flight Entertainment System.</i> <p><i>The Cabin Network Service may host functions such as:</i></p> <ul style="list-style-type: none"> • <i>Access to pre-departure/departure reports,</i> • <i>E-mail/intranet/internet access,</i> • <i>Passenger database.</i> <p>Cabin Core System;</p> <p>In-flight Entertainment System;</p> <p>External Communication System;</p> <p>Cabin Mass Memory System;</p> <p>Cabin Monitoring System;</p> <p>Miscellaneous Cabin System;</p>			
<p>11.21. Information Systems (ATA46)</p> <p><i>The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display.</i></p> <p><i>Typical examples include Air Traffic and Information Management Systems and Network Server Systems</i></p> <p>Aircraft General Information System;</p> <p>Flight Deck Information System;</p> <p>Maintenance Information System;</p> <p>Passenger Cabin Information System;</p> <p>Miscellaneous Information System;</p>	1	2	-

MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS

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	Level		
	A2	B1.2	B2
<p>11.5.1. Instrument Systems (ATA31)</p> <p>Pitot static: altimeter, air speed indicator, vertical speed indicator;</p> <p>Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator;</p> <p>Compasses: direct reading, remote reading;</p> <p>Angle of attack indication, stall warning systems;</p> <p>Glass cockpit;</p> <p>Other aircraft system indication.</p>	1	2	-

...

	Level		
	A2	B1.2	B2
11.11 Hydraulic Power (ATA29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electrical, mechanical; Filters: Pressure control; Power distribution; Indication and warning systems;	1	3	-

...

	Level		
	A2	B1.2	B2
11.13 Landing Gear (ATA32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering; Air-ground sensing.	2	3	-

...

	Level		
	A2	B1.2	B2
11.14. Lights (ATA33) External: navigation, anti collision, landing, taxiing, ice; Internal: cabin, cockpit, cargo; Emergency	2	2 3	-

MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS

...

	Level		
	A3 / A4	B1.3 / B1.4	B2
12.7.1. Instrument Systems (ATA31) Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator;	1	2	-

Compasses: direct reading, remote reading; Vibration indicating systems - HUMS; Glass cockpit; Other aircraft system indication.			
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	Level		
	A3 / A4	B1.3 / B1.4	B2
12.12 Hydraulic Power (ATA29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electrical, mechanical, pneumatic; Emergency pressure generation; Filters; Pressure control; Power distribution; Indication and warning systems; Interface with other systems.	1	3	-

...

	Level		
	A3 / A4	B1.3 / B1.4	B2
12.14 Landing Gear (ATA32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, tyres, brakes; Steering; Air-ground sensing; Skids, floats.	2	3	-

...

	Level		
	A3 / A4	B1.3 / B1.4	B2
<p>12.17. Integrated Modular Avionics (ATA42)</p> <p>Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others:</p> <ul style="list-style-type: none"> Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc. <p>Core System;</p> <p>Network Components;</p>	1	2	-
<p>12.18. On Board Maintenance Systems (ATA45)</p> <p>Central maintenance computers;</p> <p>Data loading system;</p> <p>Electronic library system;</p> <p>Printing;</p> <p>Structure monitoring (damage tolerance monitoring)</p>	1	2	-
<p>12.19. Information Systems (ATA46)</p> <p>The units and components which furnish a means of storing, updating and retrieving digital information traditionally provided on paper, microfilm or microfiche. Includes units that are dedicated to the information storage and retrieval function such as the electronic library mass storage and controller. Does not include units or components installed for other uses and shared with other systems, such as flight deck printer or general use display.</p> <p>Typical examples include Air Traffic and Information Management Systems and Network Server Systems</p> <p>Aircraft General Information System;</p> <p>Flight Deck Information System;</p> <p>Maintenance Information System;</p> <p>Passenger Cabin Information System;</p> <p>Miscellaneous Information System;</p>	1	2	-

MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS

...

	Level		
	A	B1	B2
<p>13.7. Flight Controls (ATA27)</p> <p>(a)</p> <p>Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks; Stall protection systems</p> <p>(b)</p> <p>System operation: electrical, fly by wire</p>	-	-	1 2
<p>13.8. Instrument Systems (ATA 31)</p> <p>Classification; Atmosphere; Terminology; Pressure measuring devices and systems; Pitot static systems; Altimeters; Vertical speed indicators; Airspeed indicators; Machmeters; Altitude reporting/alerting systems; Air data computers; Instrument pneumatic systems; Direct reading pressure and temperature gauges; Temperature indicating systems; Fuel quantity indicating systems; Gyroscopic principles; Artificial horizons; Slip indicators; Directional gyros; Ground Proximity Warning Systems; Compass systems; Flight Data Recording systems; Electronic Flight Instrument Systems;</p>	-	-	2 3

Instrument warning systems including master warning systems and centralised warning panels; Stall warning systems and angle of attack indicating systems; Vibration measurement and indication.			
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	Level		
	A	B1	B2
13.10. On Board Maintenance Systems (ATA45) Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring)	-	-	2 3
13.11. Air Conditioning and Cabin Pressurisation (ATA21)			
13.11.1. Air supply Sources of air supply including engine bleed, APU and ground cart;	-	-	2
13.11.2. Air Conditioning Air conditioning systems;	-	-	2
Air cycle and vapour cycle machines;	-	-	3
Distribution systems;	-	-	1
Flow, temperature and humidity control system;	-	-	3
13.11.3. Pressurisation Pressurisation systems;	-	-	3
Control and indication including control and safety valves; Cabin pressure controllers;			
13.11.4. Safety and warning devices Protection and warning devices.	-	-	3
13.12. Fire Protection (ATA 26)			
(a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests.	-	-	3
(b) Portable fire extinguisher	-	-	1

13.13. Fuel Systems (ATA 28)			
System lay-out;	-	-	1
Fuel tanks;	-	-	1
Supply systems;	-	-	1
Dumping, venting and draining;	-	-	1
Cross-feed and transfer;	-	-	2
Indications and warnings;	-	-	3
Refuelling and defuelling;	-	-	2
Longitudinal balance fuel systems;	-	-	3
13.14. Hydraulic Power (ATA 29)			
System lay-out;	-	-	1
Hydraulic fluids;	-	-	1
Hydraulic reservoirs and accumulators;	-	-	1
Pressure generation: electrical, mechanical, pneumatic;	-	-	3
Emergency pressure generation;	-	-	3
Filters;	-	-	1
Pressure control;	-	-	3
Power distribution;	-	-	1
Indication and warning systems;	-	-	3
Interface with other systems;	-	-	3
13.15. Ice and Rain Protection (ATA 30)			
Ice formation, classification and detection;	-	-	2
Anti-icing systems: electrical, hot air and chemical;	-	-	2
De-icing systems: electrical, hot air, pneumatic, chemical;	-	-	3
Rain repellent;	-	-	1
Probe and drain heating;	-	-	3
Wiper Systems;	-	-	1
13.16. Landing Gear (ATA 32)			
Construction, shock absorbing;	-	-	1
Extension and retraction systems: normal and emergency;	-	-	3
Indications and warnings;	-	-	3
Wheels, brakes, antiskid and autobraking;	-	-	3
Tyres;	-	-	1
Steering;	-	-	3
Air-ground sensing.	-	-	3
13.17. Oxygen (ATA 35)			
System lay-out: cockpit, cabin;	-	-	1
Sources, storage, charging and distribution;	-	-	1
Supply regulation;	-	-	1
Indications and warnings;	-	-	3

<p>13.18. Pneumatic/Vacuum (ATA 36)</p> <p>System lay-out;</p> <p>Sources: engine/APU, compressors, reservoirs, ground supply</p> <p>Pressure control;</p> <p>Distribution;</p> <p>Indications and warnings;</p> <p>Interfaces with other systems;</p>	<p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p>	<p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p> <p>-</p>	<p>2</p> <p>2</p> <p>3</p> <p>1</p> <p>3</p> <p>3</p>
<p>13.19. Water/Waste (ATA 38)</p> <p>Water system lay-out, supply, distribution, servicing and draining;</p> <p>Toilet system lay-out, flushing and servicing;</p>	<p>-</p>	<p>-</p>	<p>2</p>
<p>13.20. Integrated Modular Avionics (ATA42)</p> <p><i>Functions that may be typically integrated in the Integrated Modular Avionic (IMA) modules are, among others:</i></p> <ul style="list-style-type: none"> <i>Bleed Management, Air Pressure Control, Air Ventilation and Control, Avionics and Cockpit Ventilation Control, Temperature Control, Air Traffic Communication, Avionics Communication Router, Electrical Load Management, Circuit Breaker Monitoring, Electrical System BITE, Fuel Management, Braking Control, Steering Control, Landing Gear Extension and Retraction, Tyre Pressure Indication, Oleo Pressure Indication, Brake Temperature Monitoring, etc.</i> <p>Core System;</p> <p>Network Components;</p>	<p>-</p>	<p>-</p>	<p>3</p>
<p>13.21. Cabin Systems (ATA44)</p> <p><i>The units and components which furnish a means of entertaining the passengers and providing communication within the aircraft (Cabin Intercommunication Data System) and between the aircraft cabin and ground stations (Cabin Network Service). Includes voice, data, music and video transmissions.</i></p> <p><i>The Cabin Intercommunication Data System provides an interface between cockpit/cabin crew and cabin systems. These systems support data exchange of the different related LRU's and they are typically operated via Flight Attendant Panels.</i></p> <p><i>The Cabin Network Service typically consists on a server, typically interfacing with, among others, the following systems:</i></p> <ul style="list-style-type: none"> <i>Data/Radio Communication, In-Flight Entertainment System.</i> <p><i>The Cabin Network Service may host functions such as:</i></p> <ul style="list-style-type: none"> <i>Access to pre-departure/departure reports,</i> <i>E-mail/intranet/internet access,</i> <i>Passenger database,</i> <p>Cabin Core System;</p> <p>In-flight Entertainment System;</p> <p>External Communication System;</p>	<p>-</p>	<p>-</p>	<p>3</p>

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

MODULE 14. PROPULSION

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	Level		
	A	B1	B2
14.3 Starting and Ignition Systems	-	-	2
Operation of engine start systems and components;			
Ignition systems and components;			
Maintenance safety requirements;			

11) Appendix II is amended as follows:

**Appendix II
Basic Examination Standard**

1. *Standardisation basis for examinations*
 - 1.1. All basic examinations must be carried out using the multi-choice question format and essay questions as specified below. The incorrect alternatives must 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 must not be mere random numbers.
2. *Question numbers for the Part-66 Appendix I Modules*

- 2.1. Subject Module 1 Mathematics:
 Category A-16 multi-choice and 0 essay questions. Time allowed 20 minutes.
 Category B1-30-32 multi-choice and 0 essay questions. Time allowed 40 minutes.
 Category B2-30-32 multi-choice and 0 essay questions. Time allowed 40 minutes.
- 2.2. Subject Module 2 Physics:
 Category A-30-32 multi-choice and 0 essay questions. Time allowed 40 minutes.
 Category B1-50-52 multi-choice and 0 essay questions. Time allowed 65 minutes.
 Category B2-50-52 multi-choice and 0 essay questions. Time allowed 65 minutes.
- 2.3. Subject Module 3 Electrical Fundamentals:
 Category A- 20 multi-choice and 0 essay questions. Time allowed 25 minutes.
 Category B1-50-52 multi-choice and 0 essay questions. Time allowed 65 minutes.
 Category B2-50-52 multi-choice and 0 essay questions. Time allowed 65 minutes.
- 2.4. Subject Module 4 Electronic Fundamentals:
 Category A-None.
 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.
- 2.5. Subject Module 5 Digital Techniques/Electronic Instrument Systems:
 Category A-16 multi-choice and 0 essay questions. Time allowed 20 minutes.
 Category B1.1 & B1.3-40 multi-choice and 0 essay questions. Time allowed 50 minutes.
 Category B1.2 & B1.4-20 multi-choice and 0 essay questions. Time allowed 25 minutes.
 Category B2-70-72 multi-choice and 0 essay questions. Time allowed 90 minutes.
- 2.6. Subject Module 6 Materials and Hardware:
 Category A-50-52 multi-choice and 0 essay questions. Time allowed 65 minutes.
 Category B1-70-72 multi-choice and 0 essay questions. Time allowed 90 minutes.
 Category B2-60 multi-choice and 0 essay questions. Time allowed 75 minutes.
- 2.7. Subject Module 7 Maintenance Practices:
 Category A-70-72 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.
- 2.8. Subject 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.
- 2.9. Subject Module 9 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.
- 2.10. Subject Module 10 Aviation Legislation:
 Category A-30-32 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.

- 2.11. Subject Module 11a Turbine Aeroplane Aerodynamics, Structures and Systems:
Category A-~~100~~ 108 multi-choice and 0 essay questions. Time allowed ~~125~~ 135 minutes.
Category B1-~~130~~ 140 multi-choice and 0 essay questions. Time allowed ~~165~~ 175 minutes.
Category B2-None.
- 2.12. Subject Module 11b Piston Aeroplane Aerodynamics, Structures and Systems:
Category A-~~70~~ 72 multi-choice and 0 essay questions. Time allowed 90 minutes.
Category B1-100 multi-choice and 0 essay questions. Time allowed 125 minutes.
Category B2-None.
- 2.13. Subject Module 12 Helicopter Aerodynamics, Structures and Systems:
Category A-~~90~~ 100 multi-choice and 0 essay questions. Time allowed ~~115~~ 125 minutes.
Category B1-~~115~~ 128 multi-choice and 0 essay questions. Time allowed ~~145~~ 160 minutes.
Category B2-None.
- 2.14. Subject Module 13 Aircraft Aerodynamics, Structures and Systems:
Category A-None.
Category B1-None.
Category B2-~~130~~ 180 multi-choice and 0 essay questions. Time allowed ~~165~~ 225 minutes.
- 2.15. Subject Module 14 Propulsion:
Category A-None.
Category B1-None.
Category B2-~~25~~ 24 multi-choice and 0 essay questions. Time allowed 30 minutes.
- 2.16. Subject Module 15 Gas Turbine Engine:
Category A-60 multi-choice and 0 essay questions. Time allowed 75 minutes.
Category B1-~~90~~ 92 multi-choice and 0 essay questions. Time allowed 115 minutes.
Category B2-None.
- 2.17. Subject Module 16 Piston Engine:
Category A-~~0~~ 52 multi-choice and 0 essay questions. Time allowed 65 minutes.
Category B1-~~0~~ 72 multi-choice and 0 essay questions. Time allowed 90 minutes.
Category B2-None.
- 2.18. Subject Module 17 Propeller:
Category A-~~0~~ 20 multi-choice and 0 essay questions. Time allowed 25 minutes.
Category B1-~~30~~ 32 multi-choice and 0 essay questions. Time allowed 40 minutes.
Category B2-None.
- 12) Appendix III is replaced as follows:

Appendix III
Type Training and Examination Standard.
On the Job Training

1. Type training levels

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

Level 1

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

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

- (a) provide a simple description of the whole subject, using common words and examples, using typical terms and identify safety precautions related to the airframe, its systems and powerplant
- (b) Identify aircraft manuals, maintenance practices important to the airframe, its systems and powerplant
- (c) Define the general layout of the aircraft's major systems
- (d) Define the general layout and characteristics of the powerplant
- (e) Identify special tooling and test equipment used with the aircraft

Level 2

Basic system overview of controls, indicators, principal components, including their location and purpose, servicing and minor troubleshooting. General knowledge of the theoretical and practical aspects of the subject.

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

- (a) Understand the theoretical fundamentals; apply knowledge in a practical manner using detailed procedures
- (b) Recall the safety precautions to be observed when working on or near the aircraft, powerplant and systems
- (c) Describe systems and aircraft handling particularly access, power availability and sources.
- (d) Identify the locations of the principal components.
- (e) Explain the normal functioning of each major system, including terminology and nomenclature.
- (f) Perform the procedures for servicing associated with the aircraft for the following systems: Fuel, Power Plants, Hydraulics, Landing Gear, Water/Waste, and Oxygen.

- (g) Demonstrate proficiency in use of crew reports and on-board reporting systems (minor troubleshooting) and determine aircraft airworthiness per the MEL/CDL.
- (h) Demonstrate the use, interpretation and application of appropriate documentation including instructions for continued airworthiness, maintenance manual, illustrated parts catalogue, etc.

Level 3

Detailed description, operation, component location, removal/installation and bite and troubleshooting procedures to maintenance manual level.

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

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

2. Type training standard

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

2.1. Theoretical element

- (a) Objective:

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

- (b) Level of training:

Training levels are those levels defined in paragraph 1 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 must be at the higher level.

- (c) Duration:

- Times shown below are the minimum hours for the theoretical element.
- Times shown below are tuition hours only and exclude any breaks, examination, revision, preparation and aircraft visit.
- One tuition hour means 60 minutes of teaching.
- All course applications must be supported by detailed training needs analysis.

Minimum participation time is at least 90 percent of the tuition hours of the theoretical training course. If this requirement is not met, the certificate of recognition shall not be issued. Additional training may be given by the training organisation in order to meet the minimum participation time.

The number of tuition hours per day for the theoretical training shall not exceed 6 hours. In exceptional cases, the competent authority may allow deviation from this standard when properly justified.

This maximum number of hours per day is also applicable for the combination of:

- Theoretical and practical training, when they are performed at the same time;
- Training and normal maintenance duty/OJT, when they are performed at the same time.

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

Category	Hours
Aeroplanes with a maximum take-off mass above 30000kg:	
B1.1	150
B1.2	120
B2	100
C	30
Aeroplanes with a maximum take-off mass equal or less than 30000kg and above 5700kg:	
B1.1	120
B1.2	100
B2	100
C	25
Aeroplanes with a maximum take-off mass of 5700kg and below *	
B1.1	80
B1.2	60
B2	60
C	15
Helicopters **	
B1.3	120
B1.4	100
B2	100
C	25

* For non-pressurised piston engine aeroplanes below 2000kg MTOM the minimum duration can be reduced by 50%.

** For helicopters in group 2 (as defined in 66.A.42) the minimum duration can be reduced by 30%.

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:

Part-147 courses and courses directly approved by the competent authority must 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 sub-paragraph 2.1(e) below;
- Detailed competency analysis showing that the objectives as stated in sub-paragraph 2.1(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 subparagraph 2.1(c) above, these shall be justified to the competent authority by the training needs analysis as described above.

(e) Content:

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

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

Chapters	Level								
	Aeroplanes turbine		Aeroplanes piston		Helicopters turbine		Helicopters piston		Avionics
	B1	C	B1	C	B1	C	B1	C	B2
Introduction module:	-	-	-	-	-	-	-	-	-
5 Time limits/maintenance checks	1	1	1	1	1	1	1	1	1
6 Dimensions/Areas (MTOM, etc)	1	1	1	1	1	1	1	1	1
7 Lifting and Shoring	1	1	1	1	1	1	1	1	1
8 Levelling and weighing	1	1	1	1	1	1	1	1	1
9 Towing and taxiing	1	1	1	1	1	1	1	1	1
10 Parking/mooring, Storing & 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

		Aeroplanes turbine		Aeroplanes piston		Helicopters turbine		Helicopters piston		Avionics
		B1	C	B1	C	B1	C	B1	C	B2
Airframe structures:										
51	Standard Practices and Structures (damage classification, assessment and repair)	3	1	3	1	-	-	-	-	1
53	Fuselage	3	1	3	1	-	-	-	-	1
54	Nacelles/Pylons	3	1	3	1	-	-	-	-	1
55	Stabilisers	3	1	3	1	-	-	-	-	1
56	Windows	3	1	3	1	-	-	-	-	1
57	Wings	3	1	3	1	-	-	-	-	1
27A	Flight Control Surfaces (All)	3	1	3	1	-	-	-	-	1
52	Doors	3	1	3	1	-	-	-	-	1
Zonal & 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	3	1	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	Autoflight	2	1	2	1	2	1	2	1	3
23	Communications	2	1	2	1	2	1	2	1	3
24	Electrical Power	3	1	3	1	3	1	3	1	3
25	Equipment & 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 & Rain Protection	3	1	3	1	3	1	3	1	3
31	Indicating/Recording Systems	3	1	3	1	3	1	3	1	3
31A	Instrument Systems	3	1	3	1	3	1	3	1	3
32	Landing Gear	3	1	3	1	3	1	3	1	2
32A	Landing Gear - Monitoring and indicating	3	1	3	1	3	1	3	1	3
33	Lights	3	1	3	1	3	1	3	1	3
34	Navigation	2	1	2	1	2	1	2	1	3
35	Oxygen	3	1	3	1	-	-	-	-	2
36	Pneumatic	3	1	3	1	3	1	3	1	2
36A	Pneumatic - Monitoring and indicating	3	1	3	1	3	1	3	1	3
37	Vacuum	3	1	3	1	3	1	3	1	2
38	Water/Waste	3	1	3	1	-	-	-	-	2
41	Water Ballast	3	1	3	1	-	-	-	-	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 Engines										
70	Standard Practices – Engines	3	1	-	-	3	1	-	-	1

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

	Aeroplanes turbine		Aeroplanes piston		Helicopters turbine		Helicopters piston		Avionics
	B1	C	B1	C	B1	C	B1	C	B2
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 Synchronising	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

2.2 Practical element

(a) Objective:

The objective of practical training is to gain the required competence in performing safe maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example troubleshooting, repairs, adjustments, replacements, rigging and functional checks. It includes the awareness of the use of all technical literature and documentation for the aircraft, the use of specialist/special tooling and test equipment for performing removal and replacement of components and modules unique to type, including any on-wing maintenance activity.

(b) Content:

At least 50% of the crossed items in the table below, which are relevant to the particular aircraft type, shall be completed as part of the practical training.

Tasks crossed represent subjects that are important for practical training purposes to ensure that the operation, function, installation and safety significance of key maintenance tasks is adequately addressed; particularly where these cannot be fully explained by theoretical training alone. Although the list details the minimum practical training subjects, other items may be added where applicable to the particular aircraft type.

Tasks to be completed must be representative of the aircraft and systems both in complexity and in the technical input required to complete that task. While relatively simple tasks may be included, other more complex tasks shall also be incorporated and undertaken as appropriate to the aircraft type.

Glossary of the table:

- LOC: Location
- FOT: Functional / Operational Test
- SGH: Service and Ground Handling
- R/I: Removal / Installation
- MEL: Minimum Equipment List
- TS: TroubleShooting

Chapters	B1/B2	B1					B2					
		LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
Introduction module:												
5	Time limits/maintenance checks	X/X	-	-	-	-	-	-	-	-	-	-
6	Dimensions/Areas (MTOM, etc)	X/X	-	-	-	-	-	-	-	-	-	-
7	Lifting and Shoring	X/X	-	-	-	-	-	-	-	-	-	-
8	Levelling and weighing	X/X	-	X	-	-	-	-	X	-	-	-
9	Towing and taxiing	X/X	-	X	-	-	-	-	X	-	-	-
10	Parking/mooring, Storing & Return to Service	X/X	-	X	-	-	-	-	X	-	-	-
11	Placards and Markings	X/X	-	-	-	-	-	-	-	-	-	-
12	Servicing	X/X	-	X	-	-	-	-	X	-	-	-
20	Standard practices – only type particular	X/X	-	X	-	-	-	-	X	-	-	-
Helicopters:												
18	Vibration and Noise Analysis (Blade tracking)	X/-	-	-	-	-	X	-	-	-	-	-
60	Standard Practices Rotor – only type specific	X/X	-	X	-	-	-	-	X	-	-	-
62	Rotors	X/-	-	X	X	-	X	-	-	-	-	-
62A	Rotors – Monitoring and indicating	X/X	X	X	X	X	X	-	-	X	-	X
63	Rotor Drives	X/-	X	-	-	-	X	-	-	-	-	-
63A	Rotor Drives - Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
64	Tail Rotor	X/-	-	X	-	-	X	-	-	-	-	-
64A	Tail rotor -Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
65	Tail Rotor Drive	X/-	X	-	-	-	X	-	-	-	-	-
65A	Tail Rotor Drive - Monitoring and indicating	X/X	X	-	X	X	X	-	-	X	-	X
66	Folding Blades/Pylon	X/-	X	X	-	-	X	-	-	-	-	-
67	Rotors Flight Control	X/-	X	X	-	X	X	-	-	-	-	-
53	Airframe Structure (Helicopter) Note: covered under Airframe structures											
25	Emergency Flotation Equipment	X/X	X	X	X	X	X	X	X	-	-	-
Airframe structures:												
51	Standard Practices and Structures (damage classification, assessment and repair)											
53	Fuselage	X/-	-	-	-	-	X	-	-	-	-	-
54	Nacelles/Pylons	X/-	-	-	-	-	-	-	-	-	-	-
55	Stabilisers	X/-	-	-	-	-	-	-	-	-	-	-
56	Windows	X/-	-	-	-	-	X	-	-	-	-	-
57	Wings	X/-	-	-	-	-	-	-	-	-	-	-
27A	Flight Control Surfaces	X/-	-	-	-	-	X	-	-	-	-	-
52	Doors	X/X	X	X	-	-	-	-	X	-	-	-
Airframe systems:												
21	Air Conditioning	X/X	X	X	-	X	X	X	X	-	X	X
21A	Air Supply	X/X	X	-	-	-	-	X	-	-	-	-
21B	Pressurization	X/X	X	-	-	X	X	X	-	-	X	X

Chapters	B1/B2	B1					B2				
	LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
21C Safety and warning Devices	X/X	-	X	-	-	-	-	X	-	-	-
22 Autoflight	X/X	-	-	-	X	-	X	X	X	X	X
23 Communications	X/X	-	X	-	X	-	X	X	X	X	X
24 Electrical Power	X/X	X	X	X	X	X	X	X	X	X	X
25 Equipment & Furnishings	X/X	X	X	X	-	-	X	X	X	-	-
25A Electronic Equipment including emergency equipment	X/X	X	X	X	-	-	X	X	X	-	-
26 Fire Protection	X/X	X	X	X	X	X	X	X	X	X	X
27 Flight Controls	X/X	X	X	X	X	X	X	-	-	-	-
27A Sys. Operation: Electrical/ Fly-by-Wire	X/X	X	X	X	X	-	X	-	X	-	X
28 Fuel Systems	X/X	X	X	X	X	X	X	X	-	X	-
28A Fuel Systems - Monitoring and indicating	X/X	X	-	-	-	-	X	-	X	-	X
29 Hydraulic Power	X/X	X	X	X	X	X	X	X	-	X	-
29A Hydraulic Power - Monitoring and indicating	X/X	X	-	X	X	X	X	-	X	X	X
30 Ice & Rain Protection	X/X	X	X	-	X	X	X	X	-	X	X
31 Indicating/Recording Systems	X/X	X	X	X	X	X	X	X	X	X	X
31A Instrument Systems	X/X	X	X	X	X	X	X	X	X	X	X
32 Landing Gear	X/X	X	X	X	X	X	X	X	X	X	-
32A Landing Gear - Monitoring and indicating	X/X	X	-	X	X	X	X	-	X	X	X
33 Lights	X/X	X	X	-	X	-	X	X	X	X	-
34 Navigation	X/X	-	X	-	X	-	X	X	X	X	X
35 Oxygen	X/-	X	X	X	-	-	X	X	-	-	-
36 Pneumatic	X/-	X	-	X	X	X	X	-	X	X	X
36A Pneumatic - Monitoring and indicating	X/X	X	X	X	X	X	X	X	X	X	X
37 Vacuum	X/-	X	-	X	X	X	-	-	-	-	-
38 Water/Waste	X/-	X	X	-	-	-	X	X	-	-	-
41 Water Ballast	X/-	-	-	-	-	-	-	-	-	-	-
42 Integrated modular avionics	X/X	-	-	-	-	-	X	X	X	X	X
44 Cabin Systems	X/X	-	-	-	-	-	X	X	X	X	X
45 On-Board Maintenance System (or covered in 31)	X/X	X	X	X	X	X	X	X	X	X	X
46 Information Systems	X/X	-	-	-	-	-	X	-	X	X	X
50 Cargo and Accessory Compartments	X/X	-	X	-	-	-	-	-	-	-	-
Turbine/Piston Engine Module:											
70 Standard Practices – Engines - only type particular	-	-	X	-	-	-	-	X	-	-	-
70A Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems)	X/X	-	-	-	-	-	-	-	-	-	-
Turbine engines:											
70B Engine Performance	-	-	-	-	-	X	-	-	-	-	-

Chapters		B1/B2	B1					B2				
			LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL
71	Power Plant	X/-	X	X	-	-	-	-	X	-	-	-
72	Engine Turbine / Turbo Prop / Ducted Fan / Unducted fan	X/-	-	-	-	-	-	-	-	-	-	-
73	Engine Fuel and Control	X/X	X	-	-	-	-	-	-	-	-	-
73A	FADEC Systems	X/X	X	-	X	X	X	X	-	X	X	X
74	Ignition	X/X	X	-	-	-	-	X	-	-	-	-
75	Air	X/-	-	-	X	-	X	-	-	-	-	-
76	Engine Controls	X/-	X	-	-	-	X	-	-	-	-	-
77	Engine Indicating	X/X	X	-	-	X	X	X	-	-	X	X
78	Exhaust	X/-	X	-	-	X	-	-	-	-	-	-
79	Oil	X/-	-	X	X	-	-	-	-	-	-	-
80	Starting	X/-	X	-	-	X	X	-	-	-	-	-
82	Water Injection	X/-	X	-	-	-	-	-	-	-	-	-
83	Accessory Gearboxes	X/-	-	X	-	-	-	-	-	-	-	-
84	Propulsion Augmentation	X/-	X	-	-	-	-	-	-	-	-	-
Auxiliary Power Units (APUs):												
49	Auxiliary Power Units (APUs)	X/-	X	X	-	-	X	-	-	-	-	-
Piston Engines:												
70	Standard Practices – Engines - only type particular	-	-	X	-	-	-	-	X	-	-	-
70A	Constructional arrangement and operation (Installation Inlet, Compressors, Combustion Section, Turbine Section, Bearings and Seals, Lubrication Systems)	X/X	-	-	-	-	-	-	-	-	-	-
70B	Engine Performance	-	-	-	-	-	X	-	-	-	-	-
71	Power Plant	X/-	X	X	-	-	-	-	X	-	-	-
73	Engine Fuel and Control	X/X	X	-	-	-	-	-	-	-	-	-
73A	FADEC Systems	X/X	X	-	X	X	X	X	X	X	X	X
74	Ignition	X/X	X	-	-	-	-	X	-	-	-	-
76	Engine Controls	X/-	X	-	-	-	X	-	-	-	-	-
77	Engine Indicating	X/X	X	-	-	X	X	X	-	-	X	X
78	Exhaust	X/-	X	-	-	X	X	-	-	-	-	-
79	Oil	X/-	-	X	X	-	-	-	-	-	-	-
80	Starting	X/-	X	-	-	X	X	-	-	-	-	-
81	Turbines	X/-	X	X	X	-	X	-	-	-	-	-
82	Water Injection	X/-	X	-	-	-	-	-	-	-	-	-
83	Accessory Gearboxes	X/-	-	X	X	-	-	-	-	-	-	-
84	Propulsion Augmentation	X/-	X	-	-	-	-	-	-	-	-	-
Propellers:												
60A	Standard Practices - Propeller	-	-	-	X	-	-	-	-	-	-	-
61	Propellers/Propulsion	X/X	X	X	-	X	X	-	-	-	-	-
61A	Propeller Construction	X/X	-	X	-	-	-	-	-	-	-	-

Chapters	B1/B2	B1					B2				
	LOC	FOT	SGH	R/I	MEL	TS	FOT	SGH	R/I	MEL	TS
61B Propeller Pitch Control	X/-	X	-	X	X	X	-	-	-	-	-
61C Propeller Synchronising	X/-	X	-	-	-	X	-	-	-	X	-
61D Propeller Electronic control	X/X	X	X	X	X	X	X	X	X	X	X
61E Propeller Ice Protection	X/-	X	-	X	X	X	-	-	-	-	-
61F Propeller Maintenance	X/X	X	X	X	X	X	X	X	X	X	X

3. Type training examination standard

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

- (a) Format of the examination is of the multi-choice type. Each multi-choice question must have 3 alternative answers of which only one must be the correct answer. The total time is based on the total number of questions and the time for answering is based upon a nominal average of 90 seconds per question.
 - (b) The incorrect alternatives must 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 must not be mere random numbers.
 - (d) The level of examination for each chapter (*) shall be the one defined in paragraph 2 "type training standard". However, the use of a limited number of questions at a lower level is acceptable.
 - (e) The examination must 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 must be at least 1 question per hour of instruction. The number of questions for each chapter and level shall be proportionate to:
 - the effective training hours spent teaching at that chapter and level;
 - the learning objectives as given by the training needs analysis.
 The competent authority of the Member State will assess the number and the level of the questions when approving the course.
 - (g) The minimum examination pass mark is 75%. When the type training examination is split in several examinations, each examination must be passed with at least a 75% mark. In order to be possible to achieve exactly a 75% pass mark, the number of questions in the examination must be a multiple of 4.
 - (h) Penalty marking (negative points for failed questions) is not to be used.
 - (i) End of module phase examinations cannot be used as part of the final examination unless they contain the correct number and level of questions required.
- (*) For the purpose of this paragraph 3, a "chapter" means each one of the rows preceded by a number in the table contained in subparagraph 2.1(e).

4. Type examination standard

Where type training is not required, the examination must be oral, written or practical assessment based, or a combination thereof. It must comply with the following:

- (a) Oral examination questions must be open.
- (b) Written examination questions must be essay type or multi-choice questions.
- (c) Practical assessment must determine a person's competence to perform a task.
- (d) Examinations must be on a sample of chapters (**) drawn from paragraph 2 type training/examination syllabus, at the indicated level.
- (e) The incorrect alternatives must 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 must not be mere random numbers.
- (g) The examination must 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) A written report must be made by the examiner to explain why the candidate has passed or failed.

(**) For the purpose of this paragraph 4, a "chapter" means each one of the rows preceded by a number in the tables contained in subparagraphs 2.1(e) and 2.2(b).

5. On the Job Training

(a) Objective:
The objective of OJT is to gain the required competence and experience in performing safe maintenance.

(b) Content:

OJT shall cover a cross section of tasks acceptable to the competent authority. The OJT tasks to be completed must 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:

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

In order to facilitate the verification by the competent authority, demonstration of the OJT shall consist of

- detailed worksheets / logbook and
- a compliance report demonstrating how the OJT meets the requirement of this Part.

13) Appendix V is amended as follows:

Appendix V
Application Form and Example of Licence Format

...

PART-66 AIRCRAFT MAINTENANCE LICENCE

...

15. The limitations endorsed on the licence are exclusions from the certification privileges. If there are no limitations applicable, the LIMITATIONS page will be issued stating "No limitations".

...

C) Annex IV (Part-147) to Regulation (EC) No 2042/2003 is amended as follows:

14) Point 147.B.120 is amended as follows:

147.B.120 Continued validity procedure

- (a) Each organisation must be completely audited for compliance with this Part at periods not exceeding 24 months. This shall include the monitoring of at least one training course and one examination performed by the Part-147 organisation.
 - (b) Findings shall be processed in accordance with 147.B.130
- 15) Appendix III is amended as follows:

...

Type training Certificate

The Part-147 training certificate as detailed below may be used for recognition of completion of either the theoretical elements, the practical elements or both the theoretical and practical elements of the type rating training course. The certificate shall indicate the airframe/engine combination for which the training was imparted.

The appropriate references ~~should~~ shall be deleted as applicable and the course type box ~~should~~ shall detail whether only the theoretical elements or the practical elements were covered or whether theoretical and practical elements were covered.

The training certificate must clearly identify if the course is a complete course or a partial course (such as an airframe or powerplant or avionics/electrical course) or a ~~reduced~~ difference course based upon the applicant previous experience (e.g. A340 (CFM) course for A320 technicians).