

# ORGANIZATION MANUAL OF THE MAINTENANCE TRAINING ON THE TYPE AIRCRAFT

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## 1 INTRODUCTION

Throughout the development of air transport, being careful to safety. Although the first aircraft used very untypical of safety and reliability, even then, however, care was taken to maintain, which was considered as a means of reducing risk. Maintenance is therefore associated with air transport from the outset. However, with the development of air transport are increasing demands on safety and reliability of aircraft, and hence the maintenance personnel who perform this maintenance. Maintenance personnel thus became an integral part of aviation. During this development has evolved over the requirements for maintenance personnel to be gradually incorporated into aviation requirements. At present aircraft maintenance requires highly skilled professional staff, which must meet the requirements contained in international aviation regulations. Qualifications necessary for the performance of maintenance can be obtained from the training provided by the organization for maintenance training. In order for these organizations to carry out this training must meet certain requirements and be approved by the appropriate Authority. The text of these requirements is part of several air laws, regulations and guidelines that an organization must have good knowledge. One of these requirements is also the Guide, which can be aimed at basic training or aircraft type training.

## 2 LEGISLATIVE REQUIREMENTS FOR MAINTENANCE TRAINING ORGANIZATION

In order to enable the Authority to carry out its work must know and comply with all requirements defined by legislation. Briefly described herein Regulation of the European Parliament and of the Council (EC) č. 216/2008 and further Commission Regulation (EU) No. 1149/2011 and its parts, namely Part 66 and Part 147, which define the right requirements for maintenance personnel and training organization.

### 2.1 Regulation (EC) No 216/2008 of the European parliament and of the council

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/EC. This Regulation

shall apply to the design, production, maintenance and operation of aeronautical products, parts and appliances, as well as personnel and organisations involved in the design, production and maintenance of such products, parts and appliances, personnel and organisations involved in the operation of aircraft. Furthermore, the applied to the design, maintenance and operation of aerodromes, as well as personnel and organisations involved therein and, without prejudice to Community and national legislation on environment and land-use planning, the safeguarding of surroundings of aerodromes.

The principal objective of this Regulation is to establish and maintain a high uniform level of civil aviation safety in Europe. Additional objectives are, in the fields covered by this Regulation, as follows:

- (a) to ensure a high uniform level of environmental protection;
- (b) to facilitate the free movement of goods, persons and services;
- (c) to promote cost-efficiency in the regulatory and certification processes and to avoid duplication at national and European level;
- (d) to assist Member States in fulfilling their obligations under the Chicago Convention, by providing a basis for a common interpretation and uniform implementation of its provisions, and by ensuring that its provisions are duly taken into account in this Regulation and in the rules drawn up for its implementation;
- (e) to promote Community views regarding civil aviation safety standards and rules throughout the world by establishing appropriate cooperation with third countries and international organisations;
- (f) to provide a level playing field for all actors in the internal aviation market.

For the purpose of the implementation of this Regulation, a European Aviation Safety Agency shall be established. For the purposes of ensuring the proper functioning and development of civil aviation safety, the Agency shall undertake any task and formulate opinions on all matters covered by Article 1(1). Assist the Commission by preparing measures to be taken for the implementation of this Regulation. Where these comprise technical rules and in particular rules relating to construction, design and operational aspects, the Commission may not change their content without prior coordination with the Agency. The Agency shall also provide the Commission with the necessary technical, scientific and administrative support to carry out its tasks. Take the necessary measures within the powers conferred on it by this Regulation or other Community legislation. Conduct inspections and

investigations as necessary to fulfil its tasks.

## 2.2 Commission Regulation (EU) No 1149/2011

Commission Regulation (EU) No 1149/2011 of 21 October 2011 amending 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.

In order to maintain a high uniform level of aviation safety in Europe, it is necessary to introduce changes to the existing requirements and procedures on the continuing airworthiness of aircraft and aeronautical products, parts and appliances and on the approval of organisations and personnel involved in these tasks, in particular in order to update the training, examination, knowledge and experience requirements for the issuance of aircraft maintenance licences and to adapt these requirements to the complexity of the different categories of aircraft. The measures provided for in this Regulation are based on the opinions (3) issued by the European Aviation Safety Agency (hereinafter 'the Agency') in accordance with Articles 17(2)(b) and 19(1) of Regulation (EC) No 216/2008.

### 2.2.1 Part 66

Regulation Part 66 (Part 66) establishes requirements for the competence of maintenance of aircraft and helicopters. Regulation is divided into two parts. Section A sets out the requirements that must be met by the applicant for the post of maintenance of aircraft and helicopters. Section B deals with the procedures to be followed by the competent authorities. As the manual which is the subject of this article is prepared for the type of maintenance training, provision of Part 66, please note only Article 66.A.45, which defines the requirements for the type training.

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

In order to be entitled to exercise certification privileges on a specific aircraft type, the holder of aircraft maintenance licence need to have his/her licence endorsed with the relevant aircraft ratings. The endorsement of aircraft type ratings requires the satisfactory completion of the relevant category B1, B2 or C aircraft type training. In addition to the requirement 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, as described in Appendix III to Annex III (Part-66).

Aircraft type training shall consist of theoretical training and examination, and, except for the category C ratings, practical training and assessment. Theoretical training and examination shall comply with the requirement and shall be conducted by a maintenance training organisation appropriately approved in accordance with Annex IV (Part-147) or, when conducted by other organisations, as directly approved by the competent authority.

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

The aircraft type training is divided into three levels, namely:

- Level 1: A brief overview of the airframe, systems and powerplants as set out 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 provide a simple description of the whole subject, using common words and examples of typical terms and identify safety precautions related to the airframe, its systems and powerplant. It will be able to identify manuals relating to the aircraft and determine maintenance practices important to the airframe, its systems and powerplant. Will be able to define the general layout of the aircraft's major systems and general layout and characteristics of the powerplant. Identify special tooling and test equipment used in connection 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 student will be after completion of Level 2 training, able to understand the theoretical fundamentals, apply their knowledge in a practical manner using detailed procedures. Remember precautions to be observed when working on aircraft, powerplant and systems or in their vicinity. Describe systems and aircraft handling particularly access, power availability and sources. Determine the locations of the principal components and explain the normal functioning of each major system, including terminology and nomenclature. It will also be able to perform the procedures for servicing associated with the aircraft for the following systems: Fuel, Power Plants, Hydraulics, Landing Gear, Water/Waste, and Oxygen. Be able to demonstrate proficiency in use of crew reports and on-board reporting systems (minor troubleshooting) and determine aircraft airworthiness per the MEL/CDL. Will be able to demonstrate the use, interpretation and application of appropriate documentation including instructions for continued airworthiness, maintenance manual, illustrated parts catalog etc.

- Level 3: Detailed description, operation, component location, removal/installation procedures and bite and troubleshooting to maintenance manual.

Course objectives: In addition to the information contained in Level 1 and Level 2, the student after completion of Level 3 training, able to demonstrate theoretical knowledge of aircraft systems and structures and their relationship to other systems, provide a detailed description of the subject using theoretical basic knowledge and specific examples and interpret results from various sources and measurements, as well as carry out, if necessary, corrective action. It will also be able to carry out systems, powerplant, component and functions as specified in the maintenance manual of the aircraft. Will be able to demonstrate the use of appropriate documentation including structural repair manuals, manuals for troubleshooting etc. interpret and apply it. You will know Correlate information for the purpose of making decisions in respect of fault diagnosis and rectification to maintenance manual. And finally will be able to describe procedures for replacement of components unique to aircraft type.

## 2.2.2 Part 147

This section establishes the requirements to be met by organisations seeking approval to conduct training and examination as specified in Part-66. A training organisation shall be an organisation or part of an organisation registered as a legal entity. An application for an approval or for the change of an existing approval shall be made on a form and in a manner established by the competent authority. An application for an approval or change to an approval shall include the following information:

1. The registered name and address of the applicant;
2. The address of the organisation requiring the approval or change to the approval;
3. The intended scope of approval or change to the scope of approval;
4. The name and signature of the accountable manager;
5. The date of application.

The organisation shall provide an exposition for use by the organisation describing the organisation and its procedures and containing the following information:

1. a statement signed by the accountable manager confirming that the maintenance training organisation exposition and any associated manuals define the maintenance training organisation's compliance with this Part and shall be complied with at all times.
2. The title(s) and name(s) of the person(s) nominated in accordance with 147.A.105(b).
3. The duties and responsibilities of the person(s) specified in subparagraph 2, including matters on which they may deal directly with the competent authority on behalf of the maintenance training organisation.
4. A maintenance training organisation chart showing associated chains of responsibility of the person(s) specified in paragraph (a)(2).

5. A list of the training instructors, knowledge examiners and practical assessors.

6. a general description of the training and examination facilities located at each address specified in the maintenance training organisation's approval certificate, and if appropriate any other location, as required by 147.A.145(b).

7. A list of the maintenance training courses which form the extent of the approval.

8. The maintenance training organisation's exposition amendment procedure.

9. The maintenance training organisation's procedures, as required by 147.A.130(a).

10. The maintenance training organisation's control procedure, as required by 147.A.145(c), when authorised to conduct training, examination and assessments in locations different from those specified in 147.A.145(b).

11. A list of the locations pursuant to 147.A.145(b).

12. A list of organisations, if appropriate, as specified in 147.A.145(d).

The maintenance training organisation may carry out the following as permitted by and in accordance with the maintenance training organisation exposition:

1. Basic training courses to the Part-66 syllabus, or part thereof.

2. Aircraft type/task training courses in accordance with Part-66.

3. The examinations on behalf of the competent authority, including the examination of students who did not attend the basic or aircraft type training course at the maintenance training organisation.

4. The issue of certificates in accordance with Appendix III following successful completion of the approved basic or aircraft type training courses and examinations specified in subparagraphs (a)(1), (a)(2) and (a)(3), as applicable.

A maintenance training organisation shall be approved to carry out Part-66 aircraft type and/or task training subject to compliance with the standard specified in 66.A.45. A maintenance training organisation approved in accordance with 147.A.300 to conduct aircraft type training shall conduct the aircraft type examinations or aircraft task assessments specified in Part-66 subject to compliance with the aircraft type and/or task standard specified in Part-66.A.45.

## 3 ORGANIZATION MANUAL OF THE MAINTENANCE TRAINING ON THE TYPE AIRCRAFT

This section discusses the organization manual type training maintenance personnel. The maintenance training organization before they will be approved by the competent authority, must meet a number of requirements. To one of them include the development of manuals for maintenance training requirements defined by Part 147 of the Commission Regulation (EC) no. 2042/2003. The Guide has a precise content of the need to proceed with the treatment. Is divided into four parts. The first part is a general guide and defines the organization in general.

In the second part of the manual describes all the procedures and training procedures for testing. The third part of the book is dedicated to the quality system and the enforcement of the requirements of Part 147. Lastly, the fourth section of the guide contains all documents and forms used by the organization in carrying out its activities.

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### 3.1 PART 1 – MANAGEMENT

This section of the guide describes organization approved maintenance training under Part 147 of the Commission Regulation (EC) no. 2042/2003. Described herein management of the organization, responsibilities and duties of each executive employee, instructors and examiners. Furthermore, this section describes the premises of the organization and approved type training at L-410.

It outlines the maintenance training organization and procedures, based on which the relevant aeronautical authority approves the company as a maintenance training organization in accordance with Commission Regulation (EC) no. 2042/2003 Part 147.

There is a table of executives participating in the activities of the organization for maintenance training. Staff management company is responsible for compliance with all the requirements of Section 147.

At the head of the organization is accountable manager, who shall be appointed and dismissed by the Head of Training, Quality Manager and Head of tests. Responsible manager controls the work of all senior employees. Head of training is subordinate to the head of the theoretical teaching and testing and leaders for practical training and testing. These leaders are responsible to instructors for theoretical and practical training. For organizing and conducting the tests is the responsible head of the tests, which are subordinate and supervisor evaluation.

After completion of a theoretical training course the student will be able to demonstrate an appropriate level with the theoretical knowledge of the respective systems, construction, operations, maintenance, repair and troubleshooting according to approved maintenance data. The student will be able to demonstrate the use of manuals and approved procedures, including knowledge of relevant inspections and limitations.

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 related to the type of aircraft, for example troubleshooting, repairs, adjustments, replacements, rigging and functional checks. Includes the awareness of the use of all

technical literature and documentation for the aircraft, the use specialist/special tooling and test equipment for the removal and replacement of components and modules unique to type, including any maintenance activity on the wing.

The company must notify the competent authority of any proposed changes to the organization that affect the approval before actually making changes to the competent authority to determine continued compliance with Part 147 and, if necessary, to amend the certificate of authorization of the maintenance training organization. The competent authority may prescribe the conditions under which the Company may operate during such changes unless the competent authority decides to suspend authorization of the maintenance training organization.

### 3.2 PART 2 – TRAINING AND EXAMINATION PROCEDURES

In this part of the manual describes procedures for training and testing procedures. Described herein overall conduct of courses and the necessary steps that must be met in order to run the course as required by Part 147 Chapter discusses the preparation of the necessary course materials, training rooms and workshops that are in the theoretical and practical training. Describes the course and tests. End of the chapter is devoted to the necessary documentation course and all records that are kept during training.

The aircraft type training is performed in a Part-147 approved Dates of the training promulgated always at least two months in advance. Notification to the competent authority shall be given at least 10 working days before the course starts. The company declares course whenever possible, if the number of candidates and 5 more. Maximum number of students per course is 15 In case the company for any reason the course is canceled, it shall notify the competent authority no later than the day of the planned launch of a canceled course.

Everyone interested in leading training course sends application. The candidate shall complete and endorse the application and sends it back to the company. Head of training checks meet the entry requirements for the course and re- writing to bring it to course date and confirm their inclusion in the course. If the candidate fails to meet the requirements for inclusion in the course of training leading notify him that he can not move to the course.

At the beginning of each course, students are familiar with the course syllabus and timetables, safety regulations, and also with the guidelines of the organization. Then, each student shall sign a statement that is familiar with the guidelines of the organization, and that it will comply.

The theoretical part of the course is conducted in a classroom. Theoretical tests are performed in a dedicated room. Maximum number of students is 12.

The practical part of the course and a practical assessment is carried out in workshops and a hangar. Maximum number of students is limited to 6 students per instructor/examiner.

Duration and syllabus is provided for manual maintenance training organization in chapter 4.2.

If sufficient attendance, successful implementation of theoretical examinations and practical assessments positive student obtains a certificate of completion for the aircraft type course.

Finally, the course has to be completed by each student satisfaction survey course with the course. He serves the organization after evaluating the possible improvement of the conditions of the course, respectively, proposal for corrective action if necessary.

### 3.3 PART 3 – TRAINING SYSTEM QUALITY PROCEDURES

This section of the guide is devoted to the individual management procedures of the quality system training. There is described an audit of training and testing, which is to check whether the training and test shall follow the requirements of Section 147 goes on to describe the evaluation tests and corrective measures. End of chapter discusses the various qualifications of managers, instructors and examiners.

The quality system of the company is tasked to independently verify compliance with all the requirements of Part 147 and guides the organization type training maintenance personnel. Quality Manager performs at least two independent audits during the year. In order to verify compliance with all the requirements of Part 147 Quality Manager performs an annual independent audit of the total. Annually performed by the Quality unannounced independent audits, preferably during the course. In addition to these audits Quality Manager monitors the activities of the company and if there are any problems, helps them solve.

For each conducting audits to be completed by the Quality audit form, which describes the audit scope, what weaknesses have been identified, what corrective actions and states in which they must be implemented corrective measures. Corrective actions and timing of implementation always consult with the accountable manager. Transmit a copy of the audit form accountable manager and the original filed in the archives.

Furthermore, the Quality Manager tasked to evaluate the quality system and, if necessary, propose changes to the accountable manager.

When checking training care not to be filled with all the requirements of Part 147 and exposition. The attention is given to particular control instructors, training materials, training, teaching and training facilities for practical training. These points are described in the audit form.

### 3.4 PART 4 – APPENDICES

In this part of the manual contains all documents and forms used by the company for carrying out its activities as required by Part 147. It adds that even warp of all approved courses provided by the company. Among the documents and forms that the company needs to carry out its activities include the following:

- EASA Form 11 approval certificate training organization and maintenance of performance tests
- EASA Form 12 Application for issue / change authorizations approved under Part-147
- EASA Form 22 Recommendatory report for approval under Part 147
- EASA Form 4 Information on executives who demand that approval, as provided in Section 147
- The application for type training course L-410
- Apply for an examination
- Certificate of Completion of Training

### 5 CONCLUSIONS

Manual for organizing maintenance training need to be processed under the current aviation legislation. Given the fact that the aircraft and all parts subject to maintenance are still under development, amending the time the relevant legislation. Therefore, it is necessary to monitor these developments and the processing handbook to see to it that has always been prepared under the current legislation in force, because the proper manual is established is important for the certification process of the organization.

Analysis of existing aviation legislation that is mentioned here, it is considered the requirements to be met by an organization that seeks approval for maintenance training. Processed guide can be used as a model for processing manuals fair organization whose aim is to implement the type of training within the EU. Processed type training manual is designed for the category of aircraft L - 410, so it is important to note that in the case of type training for another category of aircraft, it is necessary to modify this manual and supplement the requirements of the relevant legislation.

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