

AVIATION MAINTENANCE TECHNICIAN CERTIFICATION SERIES

AVIATION LEGISLATION

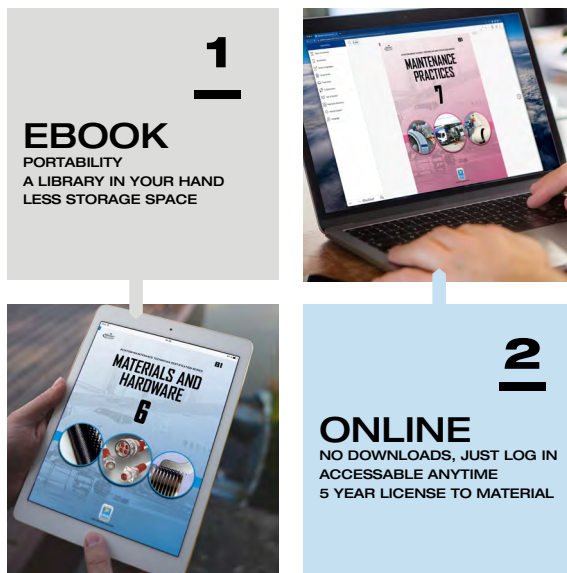
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EASA 2023-889 COMPLIANT

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VERSION	EFFECTIVE DATE
003	2024.06

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VERSION	EFFECTIVE DATE	DESCRIPTION OF REVISION(S)
001	2016.01	Module creation and release.
002	2020.10	Enhanced or modified content within the following Submodules: Submodule 4: Complete rewrite for updated regulations. Submodule 6: Complete rewrite for updated regulations.
002.1	2023.04	Inclusion of Measurement Standards for clarification, page iv. Minor appearance and format updates.
003	2024.06	Regulatory update for EASA 2023-989 compliance.

Module was reorganized based upon the EASA 2023-989 subject criteria. Enhancements included in this version 003 are:

- 10.1 *Regulatory Framework* - Added the relationship between regulations (hard law) and AMC, GM and CSS (soft law).
 - 10.1 *Regulatory Framework* - Added occurrence reporting EU 376/2014.
 - 10.1 *Regulatory Framework* - Added relationship between the annexes.
 - 10.3 *Approved Maintenance Organisations* - Added Combined Airworthiness Organizations
 - 10.5 *Air Operations* - Added topic.
 - 10.10 *Cybersecurity in Aviation Maintenance*- New Submodule on Cybersecurity.
- Replaced all questions and answers.

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Category of Aircraft	Type of Air Operation	Applicable regulation within EU regulatory framework based on Basic Regulation (EU 2018/1139)	AOC or Declaration
Aeroplane	Aeroplane Operations	EU Regulation 965/2012	See Table 5-2
Helicopter	Helicopter Operations	EU Regulation 965/2012	See Table 5-2
Balloon	Balloon Operations	EU Regulation 2018/395	Declaration – Only for commercial air transport with balloons.
Sailplanes	Sailplanes Operations	EU Regulation 2018/1976	Declaration – Only for commercial air transport with sailplanes.
Unmanned Aircraft System (UAS)	UAS Operations	EU Regulation 2019/947	
Vertical Take-Off and Landing (VTOL) Capable Aircraft (VCA)	Innovative Air Mobility (IAM) Operations	EU Regulation 965/2012	

Table 5-1. AOC or declaration for different aircraft categories.

(CAT) Commercial Air Transport Operations	AOC (and Operating License According EU 1008/2012)
(SPO) Commercial Special Operations	Declaration
(SPO) Non-commercial Special Operations with EASA Complex Motor Powered Aircraft	Declaration
(SPO) Non-commercial Special Operations with EASA Other Than Complex Motor Powered Aircraft	Declaration
(NCC) Non-commercial Operations with EASA Complex Motor Powered Aircraft	No Need For Declaration
(NCO) Non-commercial Operations with EASA Other Than Complex Motor Powered Aircraft	No Need For Declaration

Table 5-2. AOC or declaration for aeroplanes and helicopters.

Remember that AOCs are essential for commercial airlines, while self-declaration is more common for specific scenarios.

AIR OPERATOR'S CERTIFICATE (SUBPART AOC)

Prior to the commencing of Commercial Air Transport (CAT) operations, the operator shall apply for and obtain an Air Operator Certificate (AOC) issued by the competent authority. [Figure 5-3] To do so, the operator shall provide the following information to the competent authority:

- The official name and business name, address, and mailing address of the applicant.
- A description of the proposed operation, including the type(s), and number of aircraft to be operated.
- Description of the management system, including organizational structure.
- The name of the accountable manager.
- The names of the nominated persons together with their qualifications and experience.
- A copy of the operations manual.
- A statement that all the documentation sent to the competent authority have been verified by the applicant and found in compliance with the applicable requirements.

Applicants should be able to demonstrate to the competent authority the following:

- They comply with all the requirements of Annex IV to the Basic Regulation 2018/1139, the Organizational Requirements Annex (Part ORO), Annex IV (Part CAT) and Annex V (Part SPA).

- All aircraft operated have a certificate of airworthiness (CofA).
- Its organization and management are suitable and properly matched to the scale and scope of the operation.

Privileges of the operator, including those granted in accordance with Annex V (Part SPA), shall be specified in the operations specifications (OPS SPEC) of the certificate. [Figure 5-4]

OPERATOR'S RESPONSIBILITIES

The owner of the aircraft shall be responsible for the continuing airworthiness of aircraft and shall ensure that no flight takes place

AIR OPERATOR CERTIFICATE (Approval schedule for air operators)		
Types of operation: Commercial air transport (CAT) <input type="checkbox"/> Passengers; <input type="checkbox"/> Cargo; <input type="checkbox"/> Other ¹ :		
Commercial specialised operations (SPO) <input type="checkbox"/> ²		
5	State of the Operator ³ Issuing Authority ⁴	5
AOC # ⁶ :	Operator Name ⁷ Dba Trading Name ⁸ Operator address ¹⁰ : Telephone ¹¹ : Fax: E-mail:	Operational Points of Contact: ⁹ Contact details, at which operational management can be contacted without undue delay, are listed in ¹² .
This certificate certifies that ¹³ is authorised to perform commercial air operations, as defined in the attached operations specifications, in accordance with the operations manual, Annex IV to Regulation (EC) No 216/2008 and its Implementing Rules .		
Date of issue ¹⁴ :	Name and Signature ¹⁵ : Title:	

Figure 5-3. EASA Form 138 Issue 1 (App. I of Part ARO).

unless all of the following requirements are met:

- The aircraft is maintained in an airworthy condition.
- Operational and emergency equipment fitted is correctly installed and serviceable or clearly identified as unserviceable.
- The airworthiness certificate is valid.
- The maintenance of the aircraft is performed in accordance with the AMP.

AIRCRAFT MAINTENANCE PROGRAMS

An aircraft maintenance program is a document which describes or references specific scheduled maintenance tasks and their frequency of completion, along with the associated procedures and related standard maintenance practices for the safe operation of the aircraft to which it applies.

Maintenance of a transport aircraft is performed under the responsibility of the aircraft operator according to a program he/she has to detail along with the civil aviation agency of his/her country. This rule derives from agreements which guide international commercial aviation as recommended by ICAO.

SPECIALIZED OPERATIONS

Regulations require aircraft operators to be specifically approved to conduct certain types of operations. In Europe, the applicable regulation is Annex V to Regulation EU No 965/2012, known as Part SPA.

For each type of operation listed on this page, an aircraft operator needs to demonstrate to the Competent Authority that it complies with the applicable requirements before being approved.

The competent authority that needs to issue the approval is the authority of the operator's state. In most cases, this is the same as the state where the aircraft is registered, but for European non

commercial operators that use aircraft registered in non European states, the European authority may accept an approval issued by the state of registry.

PERFORMANCE BASED NAVIGATION

[Figure 5-5] Operation on certain routes or classifications of airspace requires an operator to use performance based navigation (PBN) techniques. The use of PBN means that an aircraft can navigate along a defined track with the necessary accuracy without tracking from one radio beacon to the next. The techniques are 'performance based' because the regulations don't specify that particular equipment must be installed on the aircraft and used by the pilot; instead, they specify the required performance of the navigation system.

There are many different classifications of PBN according to the particular operating environment. These are classified as area navigation specifications or required navigation performance (RNP) specifications. The difference is that to satisfy RNP requirements, there must be on board performance monitoring so that the pilot is notified if the navigation system shouldn't be relied on.

All European upper airspace requires aircraft to operate according to basic area navigation requirements, known as B-RNAV, but no specific approval is required for this. Since 2018, PBN operations have been included in mandatory pilot training, so most types of PBN do not require an operator to hold a specific approval.

REDUCED VERTICAL SEPARATION MINIMA (RVSM)

[Figure 5-6] To operate above flight level 290 (roughly 29 000 feet), operators must hold an RVSM approval. This ensures that the aircraft altimetry and operating procedures support vertical separation from other aircraft of just 1 000 feet.

To obtain approval, the aircraft must be appropriately certified, and the maintenance program needs to ensure that the altitude measuring system remains accurate and reliable. Pilots need to receive specific training, and operating procedures will ensure that they monitor the altimetry systems for any deviations from the correct flight levels. An operator will also need to put a monitoring program in place, including periodic checks of the accuracy of height keeping in flight. Regional monitoring agencies maintain

OPERATIONS SPECIFICATIONS (subject to the approved conditions in the operations manual)				
Issuing Authority Contact Details Telephone ¹ : _____; Fax: _____; E-mail: _____				
AOC# ² :	Operator Name ³ :	Date ⁴ :	Signature:	
Operations Specifications#:				
Aircraft Model ⁵ :				
Registration Marks ⁶ :				
Commercial operations <input type="checkbox"/>				
Area of operation ⁷ :				
Special Limitations ⁸ :				
Specific Approvals:	Yes	No	Specification ⁹	Remarks
Dangerous Goods	<input type="checkbox"/>	<input type="checkbox"/>		
Low Visibility Operations			RVR ¹⁰ : m CAT ¹¹ RVR: m DH: ft	
Take-off	<input type="checkbox"/>	<input type="checkbox"/>		
Approach and Landing	<input type="checkbox"/>	<input type="checkbox"/>		
Take-off	<input type="checkbox"/>	<input type="checkbox"/>		
RVSM ¹² <input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>		
ETOPS ¹³ <input type="checkbox"/> N/A	<input type="checkbox"/>	<input type="checkbox"/>	Maximum Diversion Time ¹⁴ , min.	¹⁶
Navigation specifications for PBN Operations ¹⁵	<input type="checkbox"/>	<input type="checkbox"/>		
Minimum navigation performance specification	<input type="checkbox"/>	<input type="checkbox"/>		
Helicopter operations with the aid of night vision imaging systems	<input type="checkbox"/>	<input type="checkbox"/>		
Helicopter hoist operations	<input type="checkbox"/>	<input type="checkbox"/>		
Helicopter emergency medical service operations ¹⁷	<input type="checkbox"/>	<input type="checkbox"/>		
Cabin crew training ¹⁷	<input type="checkbox"/>	<input type="checkbox"/>		
Issue of CC attestation ¹⁸	<input type="checkbox"/>	<input type="checkbox"/>		
Continuing airworthiness	<input type="checkbox"/>	<input type="checkbox"/>		¹⁹
Others ²⁰	<input type="checkbox"/>	<input type="checkbox"/>		

Figure 5-4. EASA Form 139 Issue 1 (App. II of Part ARO).



Figure 5-5. Modern cockpit with advanced navigation displays and an outside view showing virtual pathways and waypoints.

a database of aircraft granted RVSM approval by their competent authorities so that air traffic control can verify that aircraft are properly approved.

LOW VISIBILITY APPROACH OPERATIONS (CAT II/III)

[Figure 5-7] Operators need specific approval to use Category II (CAT II) or Category III (CAT III) approach operations. CAT II involves using flight director, auto-land or a heads-up display to fly down to decision heights as low as 100 ft. CAT III can use decision heights down to 0 ft. or no decision height. The actual limits applicable for CAT III depend on the equipment installed on the aircraft and the approval issued to the operator. To achieve approval for CAT II or III operations, an operator needs to have been operating the aircraft type for some time and conduct a number of approach operations using CAT II/III procedures and equipment. The operator also needs to have a system for monitoring the success rate of these approaches.

DEFINITIONS

- *Category II*—Landing following a precision approach using an instrument landing system or microwave system with a decision height of below 200 feet but not less than 100 feet. and runway visual range not less than 300 meters.
- *Category IIIA*—Landing following a precision approach using an instrument or microwave landing system with a decision height of below 100 feet and runway visual range less than 200 meters.

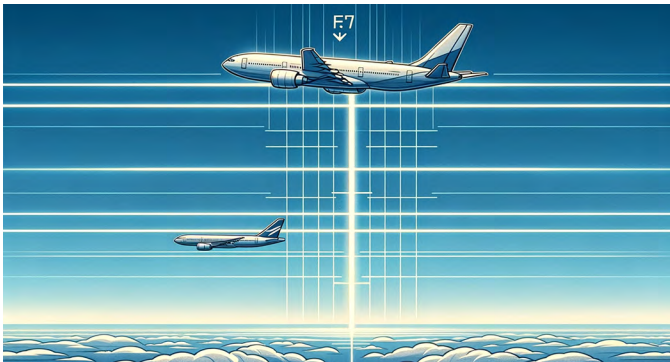


Figure 5-6. Concept of Reduced Vertical Separation Minima (RVSM) in aviation, showing two aircraft flying at high altitudes with reduced vertical distance between them.



Figure 5-7. Low Visibility Approach Operations (CAT II/III), showing an airplane on final approach in conditions of extremely low visibility with advanced instrumentation and navigation systems in the cockpit.

- *Category IIIB*—Landing following a precision approach using an instrument or microwave landing system with a decision height of below 50 feet and runway visual range less than 200 meters but not less than 75 meters.

LOW VISIBILITY OPERATIONS - GENERAL OPERATING RULES

An operator may conduct either CAT II or CAT III all weather operations if:

- Each airplane is certified for operations with decision heights less than 200 feet, and equipped in accordance to the regulations in force.
- A suitable system for recording successful or missed approaches and/or automatic landings is established to monitor the overall safety of the operation.
- All such air operations are approved by the authority.
- The crew consists of two trained and qualified pilots.
- The aircraft is equipped with, and altitude is measured with a functioning radio altimeter.
- All weather operations are approved and available in the aircraft manual including assigned tasks for each crew member during the taxing, take off, approach, and landing phases of flight.

In addition, the captain must ensure that:

- The state of visual and non-visual equipment is satisfactory prior to beginning a low visibility take off or a CAT II or III precision approach.
- Appropriate low visibility operating procedures are in place and in accordance with information received from air traffic control prior to the start of a low visibility take off or approach.
- Flight crew members are adequately qualified prior to take off in low visibility with less than 150 meter runway visual range or a Cat II or III precision approach.

EXTENDED DIVERSION TIME OPERATIONS (EDTO/ETOPS)

[Figure 5-8] ICAO Requirements for Extended Range Twin Engine Operations (ETOPS) have been in place since 1985 when they were introduced to apply an overall level of operational safety for twin engine aeroplanes which was consistent with that of the modern three and four engine aeroplanes then flying, to which no restrictions were applied.



Figure 5-8. Twin-engine jet airliner Boeing 777X flying over an ocean (ETOPS).

In 2012, changes to ICAO Annex 6 Part 1 introduced the Extended Diversion Time Operations (EDTO) regime in place of ETOPS. Annex 6 contains guidance on extended range operations for all turbine engine aeroplanes which are conducted beyond 60 minutes from a point where it is possible to fly to an enroute alternate aerodrome. EDTO flights are subject to a process of explicit approval which has both aeroplane type design and aeroplane operational requirements.

DEFINITIONS

The following requirements must be met in order for approval of EDTO operations:

- An approved EDTO aircraft maintenance program including specific tasks and inspections must be in place.
- A certified EDTO preflight program must be performed by qualified certifying staff.
- An EDTO manual linked with a continuing aircraft management exposition CAME program must be in place.
- A trend analysis and event recording program must be in place.
- The engines must be able to be started in flight via the APU.
- An oil analysis and consumption monitoring program must be in place.
- Continuous engine monitoring must be available.
- An aircraft technical log must be present.
- An approved maintenance contract must be in place.

MINIMUM EQUIPMENT LIST (MEL) AND CONFIGURATION DEVIATION LIST (CDL)

MELS AND MMELS

Each operator must establish, for each airplane a Minimum Equipment List (MEL) which must then be approved by the authority. The MEL is based on, but at least as restrictive as the relevant Master Minimum Equipment List (MMEL) which is also accepted by the authority.

The MMEL lists the items which may be temporarily inoperative or associated with special operating conditions as applicable for a specific aircraft type or model. An operator may not operate an airplane which is not compliant with the MEL unless given special permission from the authority. However, in no circumstances may operations occur if not in compliance with the MMEL. Each MMEL contains the following:

1. Approval status, including date of approval and effective date.
2. A preamble, containing considerations on the purpose and limitations, utilization, multiple inoperative items, rectification interval extension, definitions and, if appropriate, clarifying notes which adequately reflect the scope, extent and purpose of the list.
3. The list of items, and including for each item:
 - The rectification interval category.
 - The number installed or a dash symbol, as applicable.
 - The number required or a dash symbol, as applicable.
 - The operational procedure symbol, as applicable.
 - The maintenance procedure symbol as applicable.
 - Placard indications, as applicable.

- Any associated conditions and limitations, including the intent and periodicity for the accomplishment of the operational and maintenance procedure, as applicable.

System and sequence number items give detail on the equipment, system, component and function. [Figure 5-9]

RECTIFICATION INTERVALS

Inoperative items or components, deferred in accordance with the MEL, must be rectified at or prior to the rectification intervals established by the following letter designators.

- *Category A*—No standard interval is specified, however, items in this category shall be rectified in accordance with the conditions stated in the MMEL. Where a time period is specified in days, the interval excludes the day of discovery. Where a time period is specified in other than days, it shall start at the point when the defect is deferred in accordance with the operator's approved MEL.
- *Category B*—Items in this category shall be rectified within three (3) calendar days, excluding the day of discovery.
- *Category C*—Items in this category shall be rectified within ten (10) calendar days, excluding the day of discovery.
- *Category D*—Items in this category shall be rectified within 120 calendar days, excluding the day of discovery.

CONFIGURATION DEVIATION LIST

The Configuration Deviation List (CDL) allows for continued operations with missing secondary airframe and engine parts. Approval for operating with these parts missing is authorized by an amendment to the type certificate which as a result requires an aircraft flight manual supplement. Any part not included in the CDL must be considered necessary for flight. Therefore, without a CDL, missing secondary airframe and engine parts would ground the airplane until repair or replacement of the part is accomplished. An approved CDL is evaluated based on Advisory Circular AC25-7A during flight testing for aircraft certification

MASTER MINIMUM EQUIPMENT LIST					
Aircraft applicability: Aeroplanes & Helicopters					
ATA Chapter: 23 Communications					
(1) System & Sequence Numbers	(2) Rectification Interval				
ITEM	(3) Number installed	(4) Number required for dispatch			
		(5) Remarks or Exceptions			
23-10-2 23-10-2A	Audio Selector Panel	D	-	-	Any in excess of one for each required crew member on flight crew compartment duty may be inoperative.
23-10-2B		D	-	-	May be inoperative provided: (a) The flight is conducted under VFR, and (b) Required communication can be ensured using alternate means.
23-10-2-1 23-10-2-1A	Press To Transmit (PTT) Switch	B	-	-	(M) Any in excess of one for each required flight crew member may be inoperative provided the affected switch is either verified failed open (non-transmitting) or is deactivated. Procedures (M) Check of the failure of the switch in open (non-transmitting) position or deactivation in open position.

Figure 5-9. A blank MMEL indicating each item's system, component, function and rectification interval.

and contains the necessary takeoff performance decrement, the landing performance decrement, and the enroute performance decrement as appropriate for the airplane type.

AIRCRAFT PLACARDING AND MARKINGS

Markings and placards are defined in the individual aircraft type design. Some information may also be found in the Type Certificate Data Sheet. The identification of products shall include the following information:

- Manufacturer's name.
- Product designation.
- Manufacturer's serial number.
- Any other information the Agency finds appropriate.

Markings and placards on instruments, equipment, controls, etc. shall include such limitations or information as necessary for the direct attention of the crew during flight. [Figure 5-10]

Markings and placards or instructions shall be provided to give any information that is essential to ground handling in order to preclude the possibility of mistakes in ground servicing (e.g. towing, refueling) that could pass unnoticed and that could jeopardize the safety of the aircraft in subsequent flights.

Emergency markings are also required to give information to passengers and crew. The location of emergency exits, emergency or floor proximity lighting, the location of fire extinguishers and fire axes, are identified with red letters and signs. Emergency exit placards must meet specific criteria as they have to be able to be understood by all the passengers with clear, simple, and precise operating instructions.

EMERGENCY EXIT MARKINGS

For example, all the emergency exit markings must meet the following criteria:

- Each passenger emergency exit, its means of access, and its means of opening is conspicuously marked. [Figure 5-11]
- The identity and location of each passenger emergency exit is recognizable from a distance.
- Means are provided to assist the occupant in locating the exits in conditions of dense smoke.
- The location of each passenger emergency exit is indicated by a sign visible to occupants approaching along the passenger aisles.



Figure 5-10. An airspeed indicator includes colored markings around its perimeter, highlighting important restrictions for which the pilot must be aware.

- The location of the operating handle and instructions for opening exits from the inside must be clearly shown.
- Each exit that is operable from the outside, and its means of opening must also be marked from the outside. [Figure 5-12]

NATIONAL REGISTRATION MARKINGS

National registration markings must be installed and visible. They include the registration number, national identity, and a fireproof registration plate.

PRODUCT DATA PLATES

Product data plates must be installed. When markings and placards are missing, unreadable, or not properly installed, mistakes or aircraft damages may occur and could subsequently contribute to a severe failure.

DOCUMENTS TO BE CARRIED ONBOARD

The aircraft certificates and documents necessary for operations must include, but are not limited to each of the following:

- Aircraft Flight Manual
- Certificate of Registration
- Certificate of Airworthiness
- Noise Certificate
- Air Operator Certificate
- Operations Specifications
- Original Radio License
- Technical Log with Aircraft Certificate of Release to Service
- Minimum Equipment List
- Flight Plan
- Mass and Balance



Figure 5-11. Required emergency exit markings.



Figure 5-12. Required external emergency exit markings.