# European aviation law for non-lawyers

## A SIMPLE OVERVIEW AND EXPLANATION OF 'PART-M' AND 'PART-145' AVIATION REGULATIONS

### (with a very brief history of civil aviation legislation from a UK perspective)

A useful guidance document for new personnel entering the aviation industry – written by a non-lawyer for non-lawyers


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**Disclaimer:** *The text in this guidance document is the words of the author and is only intended as a basic educational guide to European civil aviation legislation as it applies in the UK, with easy-to-understand analogies and references to the actual regulations. By no means does it intend to replace any regulations or to be authoritative in any way. A number of UK and European regulations are discussed in this document and the author highly recommends that, should the reader wish to seek further information on the matter, they read the original source of the information, which can be readily found on the official websites of the UK Civil Aviation Authority and the European Aviation Safety Agency. If in doubt, refer to the source.*

## INTRODUCTION

This guidance document has been produced with the aim of providing a simple and straightforward overview of commercial[1] aviation legislation[2] with a focus on the difference between 'Part-M' and 'Part-145' regulations.[3]

'Part-M' and 'Part-145' simply refer to two sets of European aviation regulations that aim to ensure that commercial and certain non-commercial aircraft are kept well maintained and safe to fly at all times during their operational life.

The **Part-M regulations** specifically apply to the owner and/or operator of an aircraft and lay down the responsibilities, rules and actions that they must carry out in relation to an aircraft. Examples of actions include:

- Creating and managing a maintenance programme for each aircraft
- Ensuring that appropriate maintenance is carried out
- Making sure specific inspections are carried out on an aircraft before each flight
- Keeping all an aircraft's records and manuals for its entire operational life

By the time a large commercial aircraft is retired from service, the paperwork accumulated through Part-M activities can weigh as much as the aircraft itself (although with the increased use of electronic records, the weight of aircraft records is steadily reducing).

The **Part-145 regulations**, on the other hand, apply to the maintenance organisation that will carry out the physical maintenance of an aircraft. They do not apply to the owner and/or operator of the aircraft. The owner and/or operator will organise the aircraft maintenance with the maintenance organisation. They will discuss the requirements with this organisation, provide a copy of the maintenance programme and manuals and hand over the aircraft. The maintenance organisation will then undertake the maintenance in accordance with Part-145 regulations.

The following document is intended as a simple introduction to the above two sets of regulations, but is by no means a complete representation of European aviation law and regulations.

In order to aid understanding, a comprehensive glossary of both normal and more technical words has been provided at the back of this guidance document in the form of a glossary. Some of those words are also defined in footnotes throughout the text for ease of use.

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[1] **commercial.** making or intended to make a profit; concerned with or engaged in commerce. Commercial aviation differs from general aviation as it involves profit-making, whereas general aviation involves the private use of aircraft not for profit.

[2] **legislation.** laws, considered collectively, or the process of making laws.

[3] **regulation.** a rule or directive made and maintained by an authority.

This guidance is divided into two parts:

1. Part I offers a brief overview of the history of aviation legislation including the current legislation in force in the European Union.[4]

2. Part II illustrates by way of anecdote and analogy[5] how these regulations actually work in reality within the context of a commercial air operator.

[4] **European Union.** an economic and political association of certain European countries as a unit with internal free trade and common external import/export duties.
[5] **analogy.** a comparison between one thing and another, typically for the purpose of explanation or clarification.

# PART I

## A BRIEF HISTORY OF BRITISH CIVIL[6] AVIATION LEGISLATION

The following paragraphs describe in brief the historical *context* and development of key aviation legislation but do not include every single event. The aim here is to give the reader a general feel for the events of the past hundred years.

The beginning of the 1900s saw great expansion in formative aircraft design and manufacturing, and after a spate of fatal aircraft accidents just before the First World War broke out, the Aeronautical Inspection Department was formed in 1914 by the British government to ensure standards for the British aircraft industry. This was the first-ever department established for the purpose of ensuring aviation safety.

In 1929 the Warsaw Convention was signed in Warsaw, Poland (a convention is an agreement between nations covering particular matters, and can also mean the meeting itself where such agreement takes place). This international convention regulates liability for international carriage of persons, luggage or goods performed by aircraft for reward (e.g. paying passenger or paying for cargo transport).

A few years later, in 1936, the Air Registration Board was created by the British government to examine civil aircraft and issue Certificates of Airworthiness (these are documents confirming that the aircraft is airworthy[7] and therefore safe to fly).

Moving away from the UK, we find that by the mid-1940s civil commercial aviation had expanded greatly across the globe, so that further international cooperation and coordination between nations was deemed necessary. Representatives of many countries agreed upon a convention to regulate international civil aviation. As a result, in 1944, 54 nations convened in Chicago to discuss this further. The Chicago Convention on International Civil Aviation, also known as the Chicago Convention, was signed on 7 December 1944 by 52 of the 54 nations in attendance

This convention established rules of airspace, aircraft registration and safety, as well as detailed the rights of signatories in relation to air travel. The Chicago Convention also established the International Civil Aviation Organization (ICAO). ICAO is a specialised agency of the United Nations[8] and was set up permanently to administer the agreements of the Chicago Convention.

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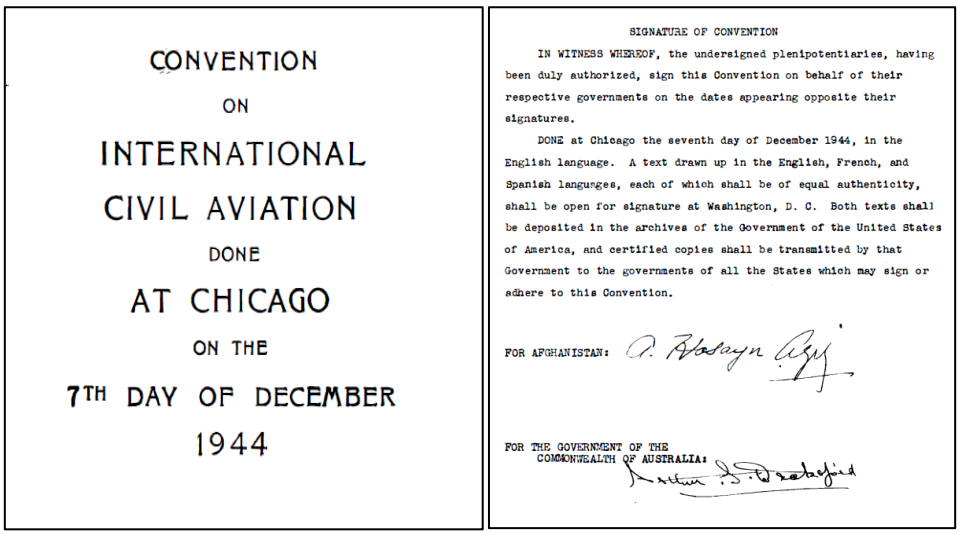
[6] **civil.** relating to ordinary citizens and their concerns, as distinct from military matters.

[7] **airworthy.** (of an aircraft or an aircraft component) in a condition in which the aircraft or component meets the conditions of its design and is in a condition for safe operation; in the condition of being safe to fly.

[8] **United Nations.** an international organisation of countries set up in 1945 to promote international peace, security and cooperation.



CONVENTION
ON
INTERNATIONAL
CIVIL AVIATION
DONE
AT CHICAGO
ON THE
7TH DAY OF DECEMBER
1944

SIGNATURE OF CONVENTION

IN WITNESS WHEREOF, the undersigned plenipotentiaries, having been duly authorized, sign this Convention on behalf of their respective governments on the dates appearing opposite their signatures.

DONE at Chicago the seventh day of December 1944, in the English language. A text drawn up in the English, French, and Spanish languages, each of which shall be of equal authenticity, shall be open for signature at Washington, D. C. Both texts shall be deposited in the archives of the Government of the United States of America, and certified copies shall be transmitted by that Government to the governments of all the States which may sign or adhere to this Convention.

FOR AFGHANISTAN:

FOR THE GOVERNMENT OF THE COMMONWEALTH OF AUSTRALIA:

**Figure 1: Original Chicago Convention signed by 52 nations. It has since been revised several times and currently, 192 nations subscribe to the convention.**

ICAO is headquartered in Montreal, Quebec. ICAO publishes all of its documentation in six official languages: English, French, Spanish, Russian, Chinese and Arabic. Its objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport. Its vision is to achieve the sustainable growth of the global civil aviation system.



**Figure 2: The official logo of ICAO and its headquarters in Montreal, Quebec.**

Now that ICAO was established and a large number of nations had agreed to the rules of the Chicago Convention, it was necessary to have similar agreements between airlines or air operators.

Therefore in 1945 the International Air Transport Association (IATA) was formed. IATA is an association of airlines that attempts to regulate fares, routes, etc. and to standardise procedures to provide quick and easy traffic of passengers between airlines. From 57 founding members in 1945, IATA now represents some 280 airlines in 120 countries. Carrying 83% of the world's air traffic, IATA members include the world's leading passenger and cargo airlines.

Moving back to the UK, the year 1949 saw the Chicago Convention and all previous laws governing the administration of civil aviation ratified (made into law) and incorporated into the British legal system through the Civil Aviation Act[9] of 1949 (this Act was subsequently revised in later years and the latest version is that of 1982).

In 1971 the Civil Aviation Act was reviewed in order to establish the Civil Aviation Authority (CAA). The CAA is responsible for all aspects of civil aviation in the UK (commercial and general aviation)[10] and is also referred to as the 'competent authority' for aviation regulations in the UK. There are currently around 20,000 aircraft on the UK aircraft register for which the CAA is responsible. These include hot-air balloons, light gliders and more, all the way up to large commercial aircraft. The CAA is headquartered in London, with a large office at Gatwick Airport.

In the UK the Air Navigation[11] Order is the legal document that implements the Civil Aviation Act 1982 and that details the rules to be followed in its airspace. This order has been revised many times and the current revision is that of 2016. It is readily available online from the CAA and government websites.

We now leave the UK once again and put our attention on the wider European community.

With ICAO now well established and the global civil aviation industry continuing to rapidly expand, some European national civil aviation authorities started to cooperate with each other with the aim of harmonising[12] civil aviation transport between European countries, to enable all nations involved to operate in a coordinated fashion across European airspace.

In 1970, as a result of this cooperation, the Joint Aviation Authorities (JAA) was formed. The JAA was responsible for publishing regulations governing the operations, maintenance, licensing and certification/design standards for all classes of aircraft in the EU. These regulations were introduced after long consultation to achieve common ground between the states involved and are known as Joint Aviation Requirements, or JARs.

Fast-forward a few years, and in the same way that the European Parliament[13] has been regulating all aspects of European life from agriculture to energy production and so on, it has also regulated the field of civil aviation.

[9] **Act.** also called Act of Parliament: a written law passed by Parliament (officially approved by being voted on).
[10] **general aviation.** civil aviation other than large-scale commercial passenger or freight operations. For example, small private aircraft, gliders, etc.
[11] **navigation.** the process or activity of accurately determining one's position and planning and following a route.
[12] **harmonise.** to be in agreement in action, sense or feeling.
[13] **European Parliament.** see definitions and diagram in the glossary at the back of this document.

In 2002 the Council of the European Union (established by the European Parliament, see illustration in glossary) published a legally binding document, a 'Basic Regulation', which established and formed the European Aviation Safety Agency (EASA). EASA took over the functions of the JAA, and the JAA ceased operating in 2009. The JARs have been absorbed into EU aviation law. EASA is headquartered in Cologne, Germany and employs over 800 aviation experts and administrators. It is now the aviation safety authority in Europe.

**Figure 3: The European Aviation Safety Agency (EASA) in Cologne, Germany.**

## SUMMARY

- **ICAO** is a specialised agency of the United Nations and was set up permanently to administer the agreements of the Chicago Convention. Its objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport. It is headquartered in Montreal, Quebec.

- **EASA** is an agency of the European Union and is responsible for ensuring safety and environmental protection in air transport in Europe. EASA also encourages compliance with EU aviation regulations by all European member states. It is headquartered in Cologne, Germany.

- **UK CAA** is responsible for all aspects of civil aviation in the UK (commercial and general aviation)[14] and is also referred to as the 'competent authority' for aviation regulations in the UK. It oversees the nation-wide implementation of EU aviation regulations in coordination with the country's air law as described in the Air Navigation Order. It is headquartered in London.

[14] **general aviation.** civil aviation other than large-scale commercial passenger or freight operations. For example, small private aircraft, gliders, etc.

## THE BASIC REGULATION

The aforementioned Basic Regulation was first revised in 2008 and numbered Regulation No. 216/2008, and revised again in 2018, numbered **Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency**.

From the Basic Regulation, further sets of regulations were created with the aim of implementing[15] the Basic Regulation. They are called 'Implementing Rules' or 'IRs'.

They cover areas such as aircraft manufacture, air traffic control, air operations, initial[16] and continuing airworthiness,[17] etc.

22.8.2018 EN Official Journal of the European Union L 212/1

REGULATION (EU) 2018/1139 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

of 4 July 2018

on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91

**Figure 4: Title page of the Basic Regulation.**

## CONTINUING AIRWORTHINESS IMPLEMENTING RULES

With respect to Part-M and Part-145, the implementing rules we are interested in can be found in **Commission[18] Regulation (EU) No. 1321/2014 on the continuing airworthiness of aircraft and aeronautical parts, products and appliances[19] and on the approval of organisations and personnel involved in these tasks**.

It was originally published in 2003, but was later recast[20] in 2014 to fully bring it up to date with all amendments that had been separately issued over the past decade.

[15] **implementing.** putting a decision, plan, agreement, etc. into effect.
[16] **initial airworthiness.** the process by which a newly built aircraft is certified as being airworthy before it leaves the manufacturer. The word 'initial' means 'existing or occurring at the beginning'.
[17] **continuing airworthiness.** continuing airworthiness. all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.
[18] **European Commission.** The European Commission is an institution of the European Union, responsible for proposing legislation, implementing decisions, upholding the EU treaties and managing the day-to-day business of the EU.
[19] **appliance.** any device used in the operation of an aircraft that is not part of the airframe, engine or propeller.
[20] **recast.** presented or organised in a different form or style.

This regulation carries five annexes[21], each of which deals with a specific aspect of continuing airworthiness of an aircraft. Compliance with the regulations in all five annexes is vital to ensure flight safety. Part-M and Part-145 are only two of the annexes but it is useful to have an appreciation for all five in order to understand how they all fit together.

The five aspects covered by the annexes are: (1) continuing airworthiness management; (2) aircraft maintenance organisations; (3) training and licensing of aircraft maintenance engineering personnel; (4) organisations that deliver maintenance engineering training; and (5) additional requirements when handling aircraft from a non-EU country that have been leased to an EU operator.

The regulations laid down in each of the annexes are legally binding, and a short description of each follows. *Note that the numbering **145, 147** and **66** for three of the annexes are numbers carried over from their predecessors, the JARs, which at the time used a similar numbering system to that of the United States. The US system differs from the EU system. This guidebook only looks at the EU system as applicable to all EU states.*

**Annex I – Part-M:** This annex lays down the rules and requirements to be implemented by an aircraft operator/owner to ensure that any civil aircraft, commercial or private, is kept in an airworthy condition through effective continuing airworthiness management by either an approved Continuing Airworthiness Management Organisation (CAMO)[22] or some other suitable arrangement. (The letter 'M' here stands for 'maintenance management'.)

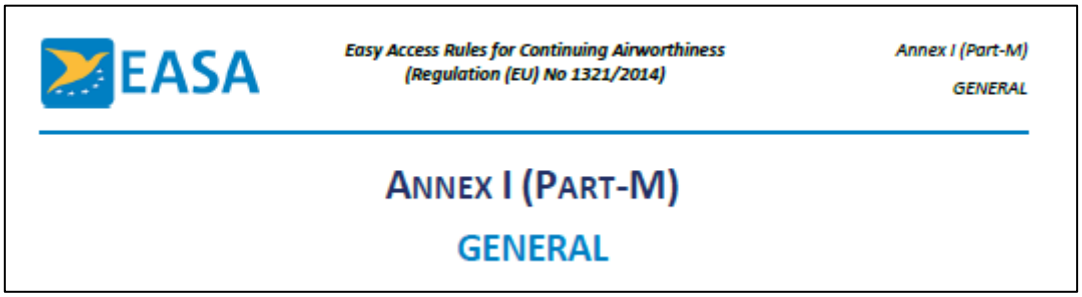



**Figure 5: Title page of Annex I (Part-M) in EASA's Easy Access Rules format.**

**Annex II – Part-145:** This annex lays down the rules and requirements to be implemented by organisations that physically maintain aircraft and aircraft components. Maintenance also includes the maintenance of components fitted to these aircraft.

[21] **annex.** an additional set of information attached to a main document.

[22] **Continuing Airworthiness Management Organisation (CAMO).** an organisation established either by the commercial air transport operator (as one of its internal departments) or independently, in accordance with regulations. A CAMO is responsible for the management of continuing airworthiness tasks and activities for an operator's fleet or for individual aircraft owners. The goal of this organisation is an airworthy fleet or aircraft.

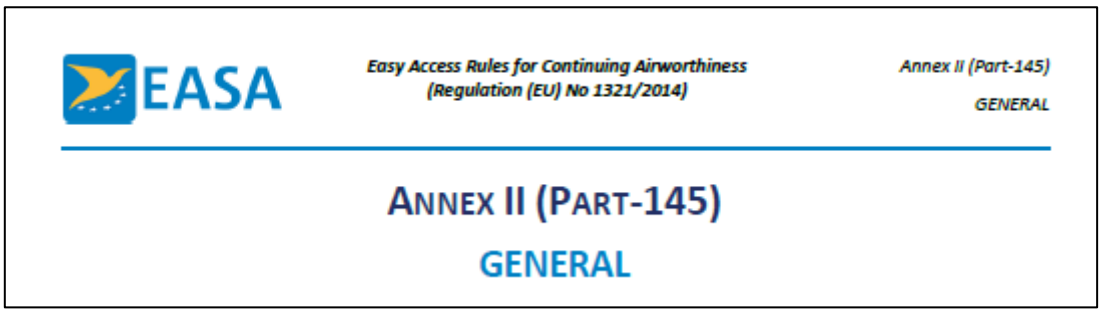



**Figure 6: Title page of Annex II (Part-145) in EASA's Easy Access Rules format.**

**Annex III – Part-66:** This annex lays down the rules and requirements for the training and licensing of aircraft maintenance engineers. When you hear that an individual is a Part-66 licensed engineer, this means that they should have successfully met the requirements detailed in this annex, and should have been issued a Part-66 licence by their country's civil aviation regulatory body (or a representative competent authority) for the aircraft maintenance knowledge and skills they have obtained through specific training and experience.

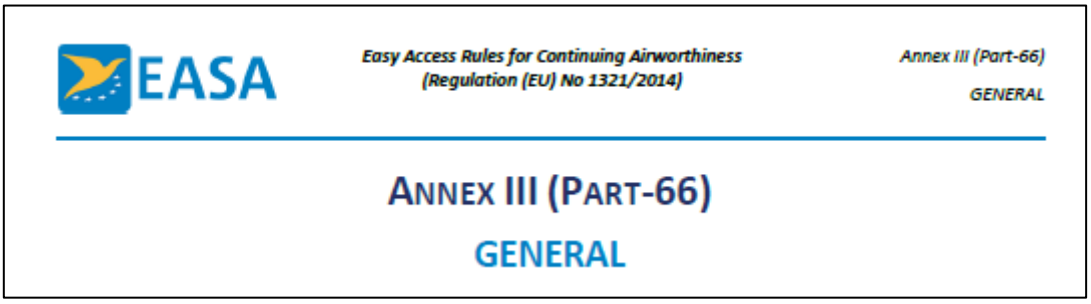



**Figure 7: Title page of Annex III (Part-66) in EASA's Easy Access Rules format.**

**Annex IV – Part-147**: this annex lays down the rules and requirements to be implemented by a training organisation intending to train up aircraft maintenance engineers on a Part-66 basic training programme (for initial licensing) and to deliver training specific to types of aircraft (type training) – for example, training specific to Airbus A320 aircraft.

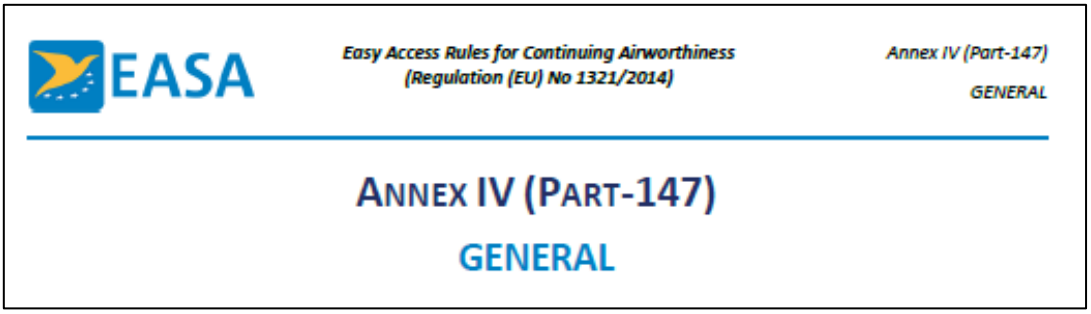



**Figure 8: Title page of Annex IV (Part-147) in EASA's Easy Access Rules format.**

**Annex Va – Part-T:** this annex lays down the rules and requirements to be implemented by a CAMO in the handling of aircraft from a non-EU country that

have been leased to an EU operator for a short term (less than seven months). The letter 'T' stands for 'third country', which means a non-EU country.

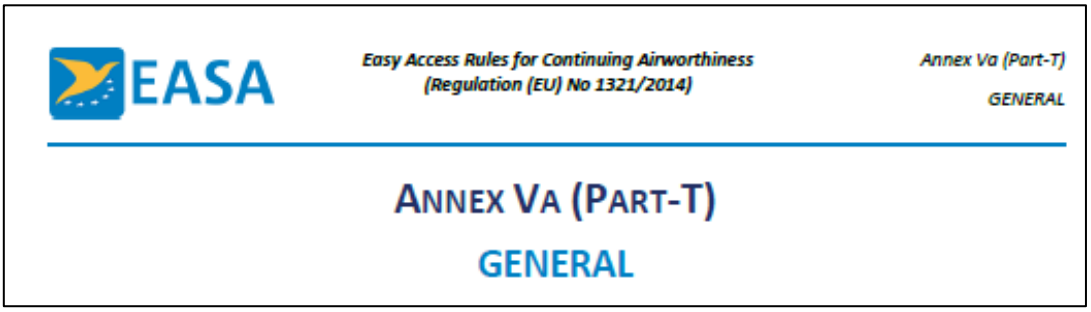



**Figure 9: Title page of Annex Va (Part-T) in EASA's Easy Access Rules format.**

It is important to keep in mind that the successful continuing airworthiness of aircraft and aeronautical products, parts and appliances and the approval of organisations and personnel involved in these tasks depend primarily on the adequate and effective implementation of the regulations found in Commission Regulation 1321/2014 and its five annexes: Part-M, Part-145, Part-147, Part-66 and Part-T.

Each aircraft owner/operator will have its own unique arrangements with regards to managing the continuing airworthiness and maintenance of its aircraft or fleet. However, it should be understood that the continuing airworthiness management requirements in Annex I Part-M are based on a need for proportionality.[23] This simply means that the continuing airworthiness management rules and requirements applied, for example, to large commercial aircraft carrying thousands of passengers a year would not be applied in the same detail and depth to, say, a small private one-seater aircraft owned by one individual for their own private hobby. Annex I Part-M lays down very clearly the necessary requirements for types of aircraft and/or activities, and any organisation and/or individual carrying out these functions is expected to manage their business in accordance with the regulations and good aviation practice. Examples in Part II of this document serve to illustrate this.

For the sake of simplicity, the scenarios used in this guidebook are based on a typical commercial air operator. The following diagram shows how such an operator's commercial air transport operations might look. Whatever arrangements are put in place, all organisations involved must have the relevant approval(s) and must operate within the scope of the regulations.

[23] **proportionality.** the quality of corresponding in size or amount to something else.

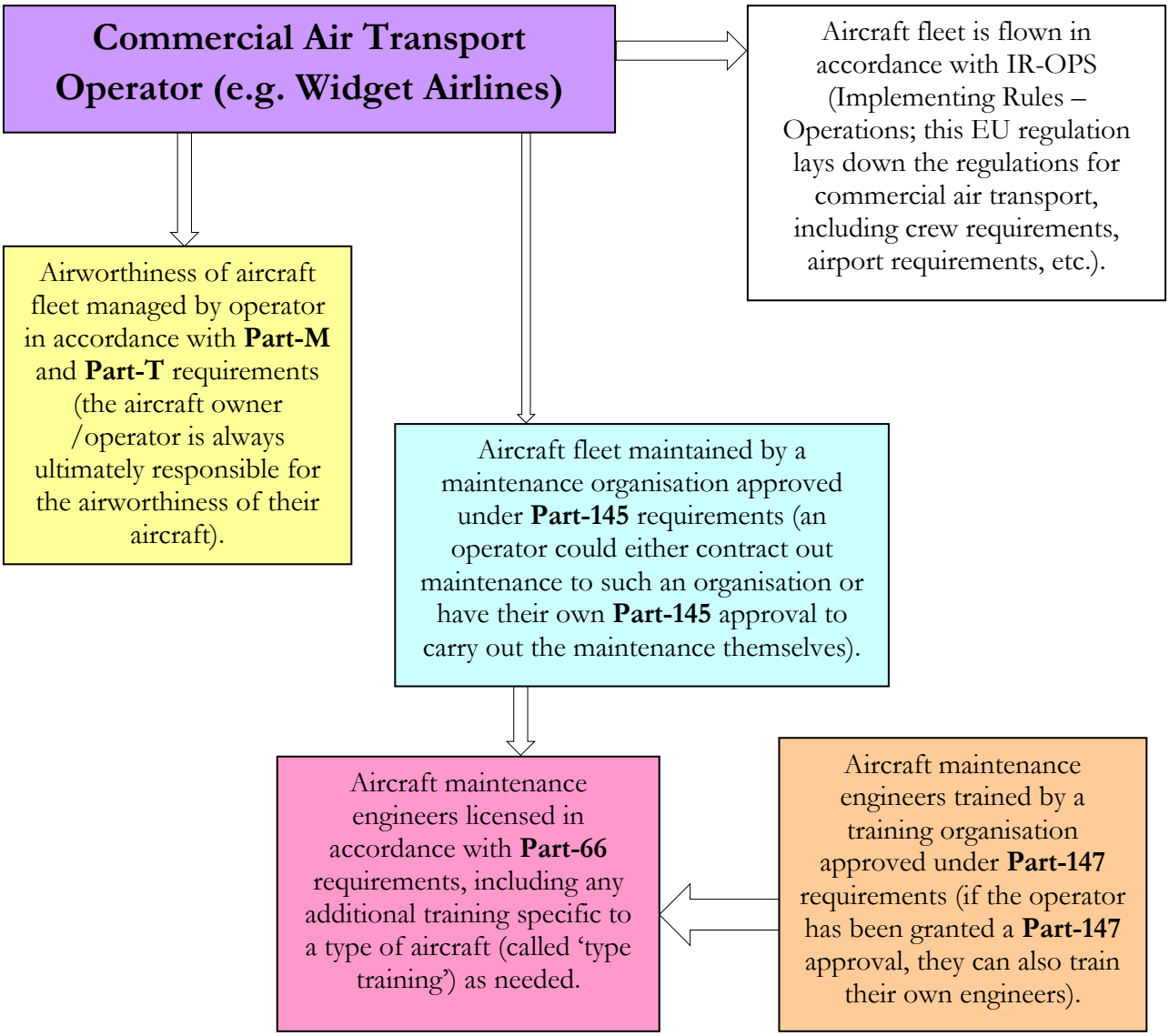



**Figure 10: A typical operational arrangement for a small commercial airline.**

The owner of a small private aircraft not involved in commercial air transport operations would still need to comply with the sections in each of the annexes which apply to their type of aircraft. However, the requirements may not be as complex as the compliance requirements for commercial air transport operator.

## SUMMARY

- The Basic Regulation refers to a legally binding document first published in 2002, but revised in 2008 and 2018, by the Council of the European Union, which set out common rules in the field of civil aviation and formed the European Aviation Safety Agency (EASA).

- From the Basic Regulation, further sets of regulations were created with the aim of implementing the Basic Regulation. They are called 'Implementing Rules' or 'IRs'. They cover areas such as aircraft manufacture, air traffic control, air operations, initial and continuing airworthiness, etc.

- The Implementing Rules that apply to the continuing airworthiness of aircraft can be found in **Commission Regulation (EU) No. 1321/2014 on the continuing airworthiness of aircraft and aeronautical parts, products and appliances and on the approval of organisations and personnel involved in these tasks**. This Commission Regulation has five annexes, each one covering a specific area:

**Annex I Part-M** – laying down the rules and requirements for the continuing airworthiness management of aircraft.
**Annex II Part-145** – laying down the rules and requirements for organisations to carry out the maintenance of aircraft. Maintenance also includes the maintenance of components fitted to these aircraft.
**Annex III Part-66** – laying down the rules and requirements for the training and licensing of aircraft maintenance engineers.
**Annex IV Part-147** – laying down the rules and requirements for organisations involved in the training of aircraft maintenance engineers.
**Annex Va Part-T** – laying down the rules and requirements for the continuing airworthiness management of certain third-country (non-EU country) aircraft that have been leased in the short term (less than seven months) by an EU aircraft operator (for example, to cover additional holiday routes during the summer season).

- All European commercial air transport owners/operators as well as owners of certain types of aircraft are obliged to comply with the above regulations.

# PART II

## PART-M AND PART-145 INTERACTION

The relationship between Part-M and Part-145 is based upon the following simple concept.

Imagine that you wished to purchase a Ford Focus car.

The ways you would most likely go about obtaining such a car would be to purchase it brand new from the manufacturer (Ford) via a dealer or through a leasing agreement, or to buy it second-hand from a dealer or private individual.

However you legally obtain your car, it should come with a service history document, various user manuals and any other data pertinent[24] to that car. For a brand-new car, once it leaves the manufacturer (after you have personalised it with leather seats, air conditioning or whatever takes your fancy), and assuming the car has been built to the required manufacturing standards, Ford is no longer responsible for the roadworthiness[25] of the car.

Once you are the proud owner of your new (or second-hand) Ford Focus, you are required by law, as the owner, to ensure that you take all precautions necessary to ensure that your car remains roadworthy. This means taking your car for its yearly MOT (Ministry of Transport) test, ensuring the tyres' treads are within limit, repairing any lights, or perhaps replacing the exhaust if it appears faulty, and so on.

There will also be some basic maintenance required such as checking the engine oil regularly and replenishing it when necessary, changing the engine water pump after so many miles, etc. The owner's manual for the car will normally detail the basic maintenance requirements.

However, the key point here is that you, as the owner, are responsible for ensuring that your car is roadworthy, regardless of how you decide to have it maintained and by whom.

When something goes wrong with the car or you need to have it serviced or MOT'd,[26] you will take it to a garage, which will carry out your instructions. If the garage mechanic discovers other problems with the car whilst repairing what you have asked him to repair, they will inform you, and you will decide how to proceed: either go ahead with the repair or not – as you see fit. Some individuals are

[24] **pertinent.** relevant or applicable to a particular matter.
[25] **roadworthiness.** (of a motor vehicle or bicycle) the condition of being safe to be driven on the road.
[26] **MOT'd.** (of a road vehicle in the UK) which has received its yearly 'Ministry of Transport' test; see glossary for full definition.

competent enough to maintain their own car themselves, only sending it for an MOT test once a year. Regardless of how many scenarios and situations exist, you, as the legal owner, still remain responsible for the roadworthiness of your car.

The garage is certainly responsible for the quality of the work that it carries out on your car, but the garage is not responsible for telling you when the MOT is due, when you need to get your car serviced, and so on. As the owner, you are wholly responsible for maintaining the roadworthiness[27] of your car, for maintaining your own service records, for keeping track of when your MOT is due, for keeping track of maintenance actions carried out on the car, etc.

Most private car owners can manage the paperwork and maintenance and service schedule for one car and therefore do not need to set up a whole organisation to manage this. On the other hand, a hauling company with a fleet of, say, 50 trucks will most likely have a department in the organisation which will take care of the paperwork and maintenance management of the trucks (when they are next due for a service, etc.)

The above concept applies to civil aviation in exactly the same way, be it private or commercial. The only difference is that the machine to be operated and maintained is usually far larger and more complex than a car. There is also a great deal more legislation and regulations for it, since aircraft safety is paramount,[28] by the very nature of the activity, and in the case of commercial air transport, the significant number of passengers one large aircraft can carry at any one time. As a result, it is necessary to have a Continuing Airworthiness Management Organisation to take care of the maintenance management of an aircraft or fleet, except in the case of small private aircraft not used for commercial purposes where the owner may wish to do it himself (such scenario is clearly covered in the regulations).

## A typical scenario (commercial air transport)

An air operator/owner decides to purchase an aircraft. If it is a new aircraft, they will buy it directly from the manufacturer and have it customised. The aircraft manufacturer, for instance Airbus, will have designed and produced the aircraft to exact standards that conform to relevant EU requirements (and non-EU requirements for that matter, as Airbus aircraft are purchased by operators from around the world).

The design and manufacture of aircraft and aircraft parts are regulated in the EU by Part-21 (Annex I to the Implementing Rules of Commission Regulation (EU) No. 748/2012, which relates to aerospace design and manufacture) and other specifications, but we do not need to concern ourselves with this here.

[27] **roadworthiness.** (of a motor vehicle or bicycle) the condition of being safe to be driven on the road.
[28] **paramount.** more important than anything else; supreme.

The moment the new aircraft has been handed over to the air operator/owner, for example our fictional Widget Airlines, Airbus is no longer responsible for the continuing airworthiness of that aircraft – its continuing upkeep and maintenance. However, the manufacturer is still responsible for the initial airworthiness of the aircraft and any design issues that may arise in the future. Assuming all has been designed, manufactured and tested properly, the aircraft will come fresh off the production line and be safe to fly (airworthy).

The manufacturer will hand over the aircraft to the new owner, together with all the documentation necessary for the maintenance of the aircraft, the structural repairs, the various replacement parts to purchase, etc. The manufacturer will certainly be on hand to sort out technical issues as required throughout the life of the aircraft, but it will not be responsible for its continuing airworthiness.

The continuing airworthiness of the aircraft is now managed by the owner/operator of the new aircraft and will be managed in accordance with Annex I Part-M regulations, as discussed in Part I (and as previously mentioned, regulations and requirements vary depending on the size of the aircraft and its intended use. These are fully described in the regulations).

In the EU, when a commercial air operator is granted their air operator's certificate[29] (AOC) by their national aviation authority (you will recall reading previously that the national aviation authority in the UK is the CAA), the operator is also automatically granted a Continuing Airworthiness Management Organisation (CAMO) approval as part of the certificate. This is a compulsory Part-M regulatory requirement for all commercial air transport operators.

**AIR OPERATOR CERTIFICATE**
(Approval schedule for air operators)

**UNITED KINGDOM**
**CIVIL AVIATION AUTHORITY**

Types of operation:
Commercial Air Transport (CAT): Passengers

| AOC number: | SCILLONIA AIRWAYS LIMITED | Operational points of contact: |
|---|---|---|
| GB 2427 | Operator address: Membury Airfield<br>Hungerford<br>Berkshire<br>RG17 7TJ | Contact details at which operational management can be contacted without undue delay are listed in Operations Manual Part A, para 1.4. |
| Valid until 14 November 2014 suspended or revoked | Telephone: +44 (0)1488 71774 | |
| Issue No. 1 | Fax: +44 (0)1488 72482 | |
| | E-mail: mail@scilloniaairways.co.uk | |

**Figure 11: Title page of an air operator's certificate (AOC) granting the operator approval to use their aircraft for commercial purposes.**

[29] **Air operator's certificate (AOC).** the approval granted from a national aviation authority (in the UK, this is the Civil Aviation Authority) to an aircraft operator to allow it to use aircraft for commercial purposes. See glossary for full definition.

The CAMO approval confers[30] to the air operator the necessary privileges to ensure that the relevant Part-M regulations are implemented in order to successfully maintain the aircraft's continuing airworthiness. The implementation of the relevant Part-M regulations is the responsibility of the air operator's CAMO (which will usually be a specific department in the air operator's organisation, or airline).

However, unlike private non-commercial aircraft owners, commercial air operators cannot contract out the continuing airworthiness management of their aircraft or fleet to independent CAMOs: they must establish their own (as a department or section of their organisation). This is fully described in the Part-M regulations.


Civil Aviation Authority
of the
United Kingdom
A Member State of the European Union

CONTINUING AIRWORTHINESS MANAGEMENT ORGANISATION

APPROVAL CERTIFICATE

Reference: UK.MG.0000GB 000

Pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council and to Commission Regulation (EC) No 2042/2003 for the time being in force and subject to the condition specified below, the Civil Aviation Authority hereby certifies:

**Figure 12: Title page of a CAMO approval certificate that would usually be granted at the same time as the air operator's certificate (AOC).**

The operator, as the owner of the aircraft, now makes sure that their aircraft is airworthy at all times they are operating it. They must develop, in conjunction with the UK CAA, a maintenance programme suitable to that aircraft based on data from the manufacturer, and must make sure that this programme is managed in accordance with requirements. There are many other actions under Part-M regulations that the owner must take to ensure continuing airworthiness.

However, when the aircraft needs to be maintained or needs to be repaired, what is the operator to do? It is at this point that the operator – if they do not have their own in-house maintenance organisation approved under Part-145 – takes their aircraft to an organisation that has the engineering skills and manpower to perform the required maintenance. In this case, the 'garage' will be a maintenance organisation approved under Part-145 to maintain specific aircraft. In the same way that an automobile garage employs skilled engineers and technicians, a Part-145 approved aircraft maintenance organisation employs highly skilled aircraft maintenance engineers and technicians or mechanics.

[30] **confer.** to grant a title, degree, benefit or right to someone.

To be a legitimate Part-145 approved aircraft maintenance organisation in the EU, the organisation must have been granted a Part-145 approval for the required aircraft types by its national aviation authority.

It will employ appropriately approved and licensed Part-66 aircraft maintenance engineers (trained and qualified in accordance with the Part-66 requirements) as well as trained mechanics to carry out the work. Only those Part-66 licensed engineers who are suitably trained for the required aircraft type, and who have also been approved by the Part-145 organisation, can certify[31] maintenance (this means give the final seal of approval for each maintenance job carried out).

As with the Ford Focus scenario, the Part-145 maintenance organisation will carry out all maintenance requested by the operator. If some other defects are found during a routine maintenance job, the maintenance organisation will take note of this, inform the operator's CAMO and typically advise on the best course of action. The operator's CAMO will then usually discuss the issue with the maintenance organisation and decide whether to go ahead with the additional repair or maintenance action, or postpone it until a later maintenance period.

Although the maintenance organisation is responsible for the quality of its maintenance work, it is not responsible for the management of the continuing airworthiness of the aircraft. This responsibility is that of the operator/owner, as in the example with the Ford Focus. The above principles apply in the same way for an aircraft that is purchased second-hand or leased.

It is important to understand that a commercial operator simply cannot operate an aircraft fleet without the services of a Part-145 approved maintenance organisation (either in-house or contracted out). Commercial transport aircraft and a number of other aircraft, by law, must be maintained by a Part-145 approved maintenance organisation. Therefore, the value of such an organisation cannot be understated.

A large air operator can often have their own Part-145 approval, which means that they are permitted to maintain their own aircraft as well as manage the continuing airworthiness of the fleet. However, for smaller operations, an air operator will usually contract out the maintenance of the fleet to an approved Part-145 organisation.

A similar arrangement can be implemented for continuing airworthiness tasks. The effective implementation of continuing airworthiness tasks may require a large amount of personnel depending on fleet size. Tasks range from developing a maintenance programme, to keeping meticulous technical records, to maintaining

[31] **certify.** to attest or confirm in a formal statement. Certifying licensed aircraft maintenance engineers must attest to the completion of a maintenance job with a formal statement.

an up-to-date technical library with all the required data for each aircraft, and much more.

Some commercial air operators may not have the manpower or finance to carry out all these tasks by themselves. Their CAMO is, therefore, permitted to subcontract a small number of continuing airworthiness management tasks to an outside organisation. Such arrangements make it possible for an operator to properly manage the continuing airworthiness of their fleet despite economic constraints or lack of suitably qualified personnel.

It must be noted that the term 'subcontracted' implies that the subcontractor carrying out the tasks operates under the quality assurance[32] system of the air operator and under the operator's CAMO approval for those tasks. The CAMO keeps a close eye on the tasks being carried out as part of its own quality assurance processes. On the other hand, the term 'contracted' implies that the contractor has its own quality assurance system in place and is wholly responsible for the final product.

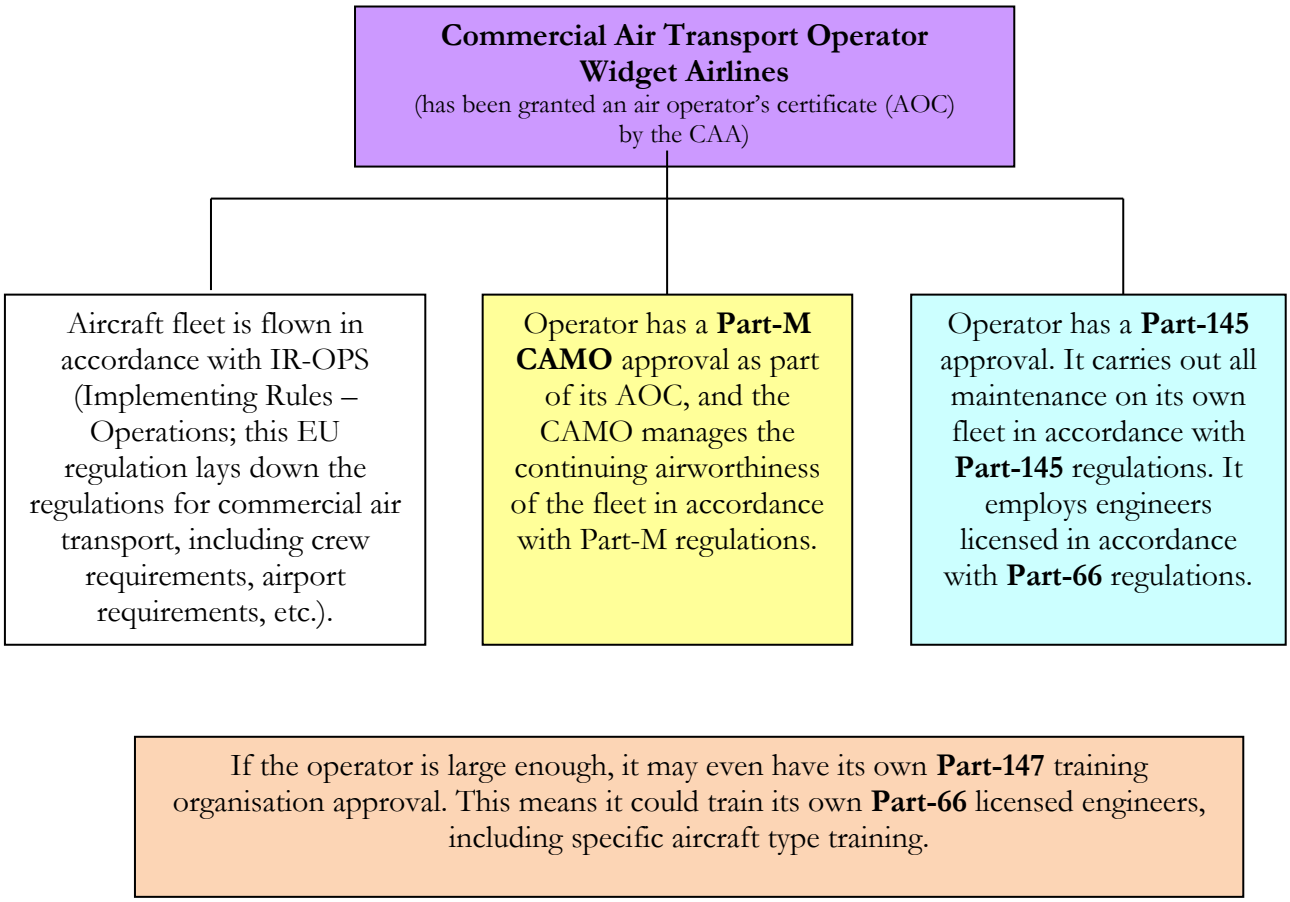



**Figure 13: A diagram of a common organisational set-up for a very large commercial operator.**

[32] **quality assurance.** the maintenance of a desired level of quality in a service or product, especially by means of attention to every stage of the process of delivery or production.

The following diagram shows how a commercial air operator with only a Part-M CAMO approval (which comes with their AOC) and no Part-145 approval would go about maintaining their aircraft fleet and keeping it airworthy. *(As previously mentioned, CAMO arrangements can be different for non-commercial operators/owners, but the principles of maintenance and continuing airworthiness remain the same. Consult the Part-M/Part-145 regulations for a complete picture).*

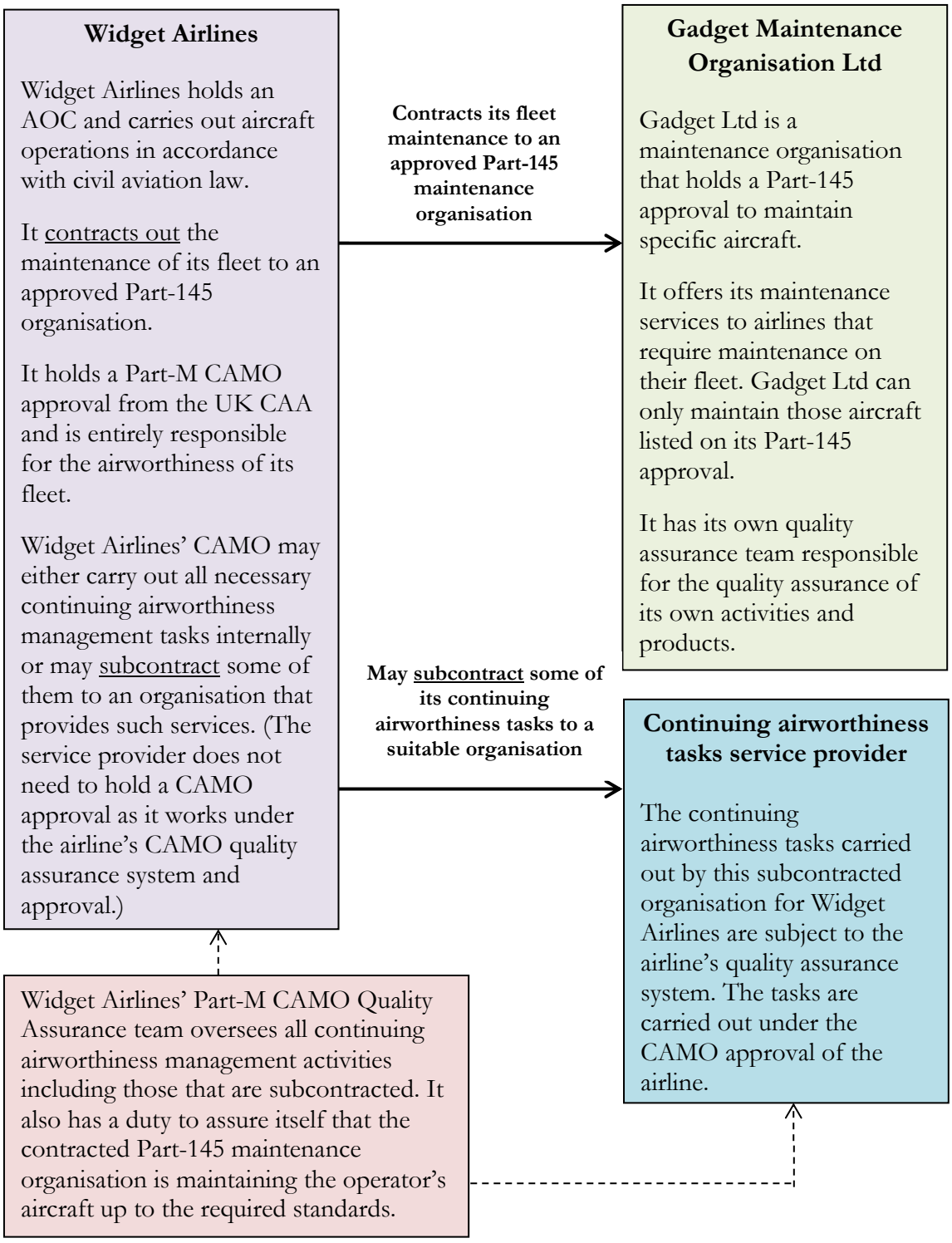



**Figure 14: Typical set-up for an air operator that contracts out its maintenance.**

## SUMMARY

- An aircraft owner/operator is ultimately responsible for the continuing airworthiness of their aircraft or fleet and must manage it in accordance with Part-M regulations.

- Commercial air transport aircraft can only be maintained by a maintenance organisation that holds a Part-145 approval and that is compliant with Part-145 regulations.

- Part-M regulations do not apply solely to commercial aircraft but also to other types of aircraft including helicopters (an aircraft being an aeroplane, helicopter or other machine capable of flight).

- Part-M regulatory requirements differ in complexity and follow the rule of proportionality depending on the type of aircraft. It is, therefore, the responsibility of the aircraft owner/operator to refer to Part-M regulations and ensure compliance with the relevant and appropriate Part-M requirements for their aircraft or fleet.

## GLOSSARY

*Note to the reader: This glossary defines key words used in this document as they apply to the text. The definitions were obtained from online sources, existing aviation glossaries and the* Oxford Dictionary of English*, 2nd edition, for standard English words.*

**Act.** also called Act of Parliament: a written law passed by Parliament (officially approved by being voted on).

**agency.** a business or organisation providing a particular service on behalf of another business, person or group.

**Agency.** when 'the Agency' appears in European aviation regulatory documents, this usual refers to the European Aviation Safety Agency (EASA). See definition in this glossary.

**Air Navigation Order (ANO).** the legal document that implements the Civil Aviation Act 1982 and that details the rules to be followed in UK airspace.

**Air operator's certificate (AOC).** the approval granted from a national aviation authority (in the UK, this is the Civil Aviation Authority (CAA)) to an aircraft operator to allow them to use aircraft for commercial purposes. This requires the operator to have personnel, assets and systems in place to ensure the safety of their employees and the general public. The certificate will list the aircraft types and registrations to be used, for what purpose and in what area – specific airports or geographic region.

**airworthiness.** (of an aircraft or an aircraft component) a state or condition of being airworthy (see 'airworthy' in this glossary). The word '-ness' means 'the state or condition of being'.

**airworthy.** (of an aircraft or an aircraft component) in a condition in which the aircraft or component meets the conditions of its design and is in a condition for safe operation; in the condition of being safe to fly.

**ANO.** *see* 'Air Navigation Order' in this glossary.

**AOC.** *see* 'Air operator's certificate' in this glossary.

**analogy.** a comparison between one thing and another, typically for the purpose of explanation or clarification.

**annex.** an addition to a document.

**appliance.** any device used in the operation of an aircraft that is not part of the airframe, engine or propeller.

**approval.** the action of officially agreeing or accepting as satisfactory. For example, a maintenance organisation that holds an approval from an aviation authority will have received official acceptance as an organisation found to satisfactorily carry out maintenance as per agreed standards.

**board.** a group of people making up the decision-making body of an organisation.

**CAA.** *see* 'Civil Aviation Authority' in this glossary.

**CAMO.** *see* 'Continuing Airworthiness Management Organisation' in this glossary.

**Certificate of Airworthiness.** the formal document issued by the Civil Aviation Authority to certify that the aircraft is airworthy.

**certify.** to attest or confirm in a formal statement. Licensed aircraft maintenance engineers who are given the authority to attest to the completion of a maintenance task with a formal statement are usually referred to as 'certifying maintenance staff'.

**civil.** relating to ordinary citizens and their concerns, as distinct from military matters.

**Civil Aviation Authority (CAA).** the UK authority responsible for all aspects of civil aviation in the UK.

**commercial.** making or intended to make a profit; concerned with or engaged in commerce.

**commission.** a group of people entrusted to do something by a government or other official body. In this document, when commission is used with a capital letter, it refers to the European Commission. *See* European Commission in this glossary.

**confer.** to grant a title, degree, benefit or right to someone.

**context.** the circumstances that form the setting for an event, statement or idea, and in terms of which it can be fully understood.

**continuing airworthiness.** continuing airworthiness. all of the processes ensuring that, at any time in its operating life, the aircraft complies with the airworthiness requirements in force and is in a condition for safe operation.

**Continuing Airworthiness Management Organisation (CAMO).** an organisation established either by the air operator or independently in accordance with regulations, and which is responsible for the management of continuing airworthiness tasks and activities for an operator's fleet or for individual aircraft owners. The goal of this organisation is an airworthy fleet or aircraft.

**convention.** 1. a large meeting or conference, especially of members of a political party or a particular profession or group. 2. an agreement between states covering particular matters.

**Council of the European Union.** this council is where national ministers from each EU country meet to adopt laws and coordinate policies. This council is not a law-making body. This responsibility comes under the European

Parliament. Unlike the European Parliament, the members of this council are not elected, but are appointed. See 'European Parliament' for a diagram.

**EASA.** *see* 'European Aviation Safety Agency' in this glossary.

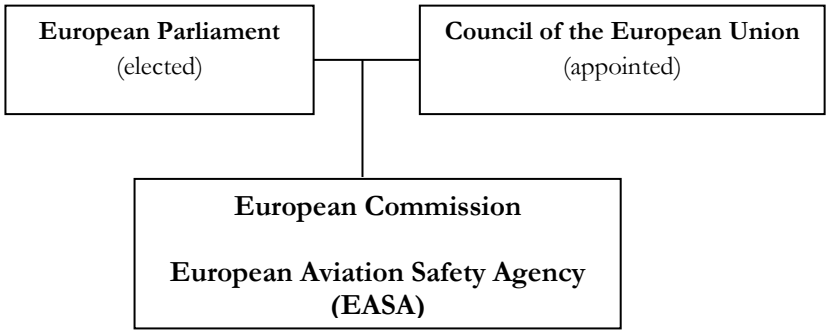
**EC.** *see* 'European Commission' in this glossary.

**EU.** *see* 'European Union' in this glossary.

**European Aviation Safety Agency (EASA).** an agency of the European Union with regulatory and executive tasks in the field of civilian aviation safety. It was established in 2002 and regulates civil aviation in Europe.

**European Commission.** The European Commission is an institution of the European Union, responsible for proposing legislation, implementing decisions, upholding the EU treaties and managing the day-to-day business of the EU.

**European Parliament.** the Parliament (highest law-making body) of the European Union. It meets in Strasbourg. The European Parliament is the only directly elected body of the European Union. There are 766 members elected once every 5 years by voters right across the 28 member states of the European Union on behalf of its 500 million citizens. See 'Parliament' and 'European Union' in this glossary.




**European Union (EU).** an economic and political association of certain European countries as a unit with internal free trade and common external import/export duties.

**general aviation.** civil aviation other than large-scale commercial passenger or freight operations. For example, small private aircraft, gliders, etc.

**harmonise.** to be in agreement in action, sense or feeling.

**IATA.** *see* International Air Transport Association in this glossary.

**ICAO.** *see* 'International Civil Aviation Organization' in this glossary.

**implementing.** putting a decision, plan, agreement, etc. into effect.

**initial airworthiness.** the process by which a newly built aircraft is certified as being airworthy before it leaves the manufacturer. The word 'initial' means 'existing or occurring at the beginning'.

**International Air Transport Association.** an association of airlines that attempts to regulate fares, routes, etc. and to standardise procedures to provide quick and easy traffic of passengers between airlines. From 57 founding members in 1945, IATA now represents some 280 airlines in 120 countries. Carrying 83% of the world's air traffic, IATA members include the world's leading passenger and cargo airlines.

**International Civil Aviation Organization (ICAO).** a specialised agency of the United Nations whose objective is to develop the principles and techniques of international air navigation and to foster planning and development of international civil air transport. The term ICAO is normally pronounced as a single word (eye-kay-o), rather than using the entire name or the initials.

**IR-OPS.** a set of EASA regulations ('Implementing Rules – Operations') that lay down the technical requirements and administrative procedures related to air operations (flight crew, take-off operations, transport of dangerous goods, and so on.)

**JAA.** *see* 'Joint Aviation Authorities' in this glossary.

**JAR.** *see* 'Joint Aviation Requirement' in this glossary.

**Joint Aviation Authorities (JAA).** a body, which until the 2009 represented the civil aviation regulatory authorities of a number of European states who had agreed to cooperate in developing and implementing common safety regulatory standards and procedures. This cooperation was intended to provide high and consistent safety standards and a 'level playing field' for competition in Europe. Much emphasis was placed on harmonising the JAA regulations with those of the USA. The Joint Aviation Authorities has now been replaced by the European Aviation Safety Agency (EASA).

**Joint Aviation Requirement (JAR).** prior to the creation of the European Aviation Safety Agency (EASA), the Joint Aviation Authorities (JAA) was responsible for publishing regulations governing the operations, maintenance, licensing and certification/design standards for all classes of aircraft. These regulations were introduced after long consultation to achieve common ground between the states involved. These regulations are known as Joint Aviation Requirements (JARs). They have now been absorbed into EU aviation law.

**legislation.** laws, considered collectively, or the process of making laws.

**MOT.** MOT stands for 'Ministry of Transport', and in the UK is a compulsory annual test for safety and exhaust emissions of motor vehicles of more than a specified age. The test was originally introduced by the Ministry of Transport,

hence 'MOT' test. If a vehicle has been MOT'd, this means it has received its annual MOT test.

**navigation.** the process or activity of accurately determining one's position and planning and following a route.

**paramount.** more important than anything else; supreme.

**Parliament.** the highest law-making body of a nation or a group of nations (as in the European Parliament). The UK Parliament consists of the Queen/King, the House of Lords and the House of Commons.

**Part-21.** a set of EU aviation regulations laying down the rules and requirements for the certification of aircraft and their parts and appliances. These requirements and procedures apply to the design, production and manufacture of such items.

**Part-66.** a set of EU aviation regulations laying down the rules and requirements for the training and licensing of aircraft maintenance engineers.

**Part-145.** a set of EU aviation regulations laying down the rules and requirements for organisations to carry out the maintenance of aircraft. Maintenance also includes the maintenance of components fitted to these aircraft.

**Part-147.** a set of EU aviation regulations laying down the rules and requirements for organisations involved in the training of aircraft maintenance engineers.

**Part-M.** a set of EU aviation regulations laying down the rules and requirements for the continuing airworthiness management of aircraft.

**Part-T.** a set of EU aviation regulations laying down the rules and requirements for the continuing airworthiness management of certain third-country (non-EU countries) aircraft that have been leased in the short term (less than seven months) by an EU aircraft operator (for example, to cover additional holiday routes during the summer season).

**pertinent.** relevant or applicable to a particular matter.

**proportionality.** the quality of corresponding in size or amount to something else.

**quality assurance.** the maintenance of a desired level of quality in a service or product, especially by means of attention to every stage of the process of delivery or production.

**ratify.** to sign or give formal consent to a contract, treaty or agreement, making it officially valid.

**recast.** presented or organised in a different form or style.

**regulation.** a rule or directive made and maintained by an authority.

**roadworthiness.** (of a motor vehicle or bicycle) the condition of being safe to be driven on the road.

**roadworthy.** (of a motor vehicle or bicycle) safe to be driven on the road.

**rule.** one of a set of explicit or understood regulations or principles governing conduct or procedure within a particular area of activity.

**United Nations.** an international organisation of countries set up in 1945 to promote international peace, security and cooperation.