

**Safety Regulation Group**



**CAP 733**

**Permit to Fly Aircraft**

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**28 June 2004**

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ISBN 0 86039 979 6

First Edition 28 June 2004

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Printed copies and amendment services are available from: Documedia Solutions Ltd., 37 Windsor Street, Cheltenham, Glos., GL52 2DG.

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## Foreword

**1** The Convention on International Civil Aviation signed in Chicago on 7 December 1944 requires aircraft registered in Contracting States to be provided with a Certificate of Airworthiness for international flight. The United Kingdom, which is a Contracting State to the International Civil Aviation Organisation (ICAO), has undertaken to implement national regulations that are, wherever possible, compliant with the ICAO standards. The Civil Aviation Authority (CAA), which acts on behalf of the British Government by virtue of the powers delegated to it under the Civil Aviation Act, develops and administers the UK regulations. The primary national regulations relating to the airworthiness of aircraft are contained in the Air Navigation Order 2000 (ANO) Part III where it is stated that all aircraft operating in UK airspace shall have a valid Certificate of Airworthiness, but that if a British registered aircraft is unable to satisfy the requirements for the issue of a Certificate of Airworthiness, it may, instead, be issued with a United Kingdom Permit to Fly. However, the Permit to Fly contains additional operational restrictions on the use of the aircraft and does not satisfy the requirements for international flight. Foreign registered aircraft operating on airworthiness documents which are not ICAO compliant will also require the permission of the CAA to fly within UK airspace; if granted, this permission will be contained in a 'Certificate of Validation', details of which can be found in Article 9B of the ANO. Guidance on the principles that should be applied in the case of any application for a Permit to Fly is contained in the British Civil Airworthiness Requirements (BCARs). In particular, BCAR Section A, Chapter A3-7 deals with design and construction standards and Chapter A8-20 is concerned with the maintenance of ex-military aircraft. In addition, the CAA has entered into formal arrangements with the Popular Flying Association (PFA) and the British Microlight Aircraft Association (BMAA), which allow these organisations to fulfil an intermediary role when providing oversight or guidance to operators, constructors and pilots of Permit to Fly aircraft.

This publication provides guidance for those who are seeking to obtain a Permit to Fly for an aircraft, or who wish to build, maintain and operate an aircraft issued with a Permit to Fly, and is applicable to the following:

- aircraft which may not have been built by an approved aircraft manufacturer; as in the case of 'amateur-built' aircraft;
- aircraft which may not be designed and manufactured to specified civil standards; as in the case of 'ex-military' aircraft; and
- microlight aeroplanes, including those classed as 'type approved', which are all ineligible for the issue of a Certificate of Airworthiness.

The European Aviation Safety Agency (EASA) became operational on the 28th September 2003 and after a transition period will assume many of the functions currently undertaken by the National Aviation Authorities (NAAs) of the EU Member Nations.

## **2 Permit aircraft which are not subject to EASA Regulation**

Many of the aircraft which fly on a UK Permit to Fly are excluded from regulation by EASA, by Annex II to EU Regulation (EC) No. 1592/2002, which is the legislation enabling the formation of EASA. Such excluded aircraft will remain subject to national requirements. In essence this means that any such aircraft which has been flying on a Permit to Fly will continue to require a Permit to Fly issued by the CAA under the ANO.



### **3 Permit aircraft which are subject to EASA Regulation**

Some aircraft which fly on a UK Permit to Fly however are subject to regulation by EASA. For these aircraft transition arrangements have been established in Regulation (EC) No. 1702/2003. Under Article 2 of this regulation, if such an aircraft has been operated on a Permit to Fly in the UK then it may continue to operate on a UK or EASA Permit under the applicable UK national rules for the time being pending certain EASA decisions. As this situation becomes clearer this Civil Aviation Publication (CAP) will be updated to provide the appropriate guidance.

# Chapter 1 Introduction

## 1 Purpose and scope

- 1.1 Within the United Kingdom, the operation of aircraft and the conduct of associated aviation activities are governed by the various legislative requirements contained in the United Kingdom Air Navigation Order 2000 (ANO). This requires that, except when operating in accordance with the provisions contained in Articles 3(2), 8(2), 9A, 9B and Schedule 3 of the ANO, an aircraft must be registered and have a valid Certificate of Airworthiness issued by the State of Registry. The CAA is responsible for the airworthiness of aircraft that are on the British register and requires compliance with the standards and detailed requirements contained in the British Civil Airworthiness Requirements (BCARs) together with Joint Aviation (JAR), European (EU CS) and International (ICAO) Regulations.
- 1.2 An aircraft will normally be issued with a Certificate of Airworthiness by its 'State of Registry', and this document attests to that National Aviation Authority being satisfied with the design and workmanship and the materials used in the construction of the aircraft. After a 'State of Design' has investigated all aspects of an aircraft's design, construction and flight characteristics, it will issue a 'type certificate', and it is compliance with this document that forms the basis on which individual Certificates of Airworthiness will subsequently be issued. In the case of aircraft that are British registered, but which have been designed and manufactured in another country, the CAA will normally carry out a review of the certification process undertaken by the State of Design, and then survey the individual aircraft in order to ensure that the conditions required for the UK to issue a Certificate of Airworthiness have been satisfied.
- 1.3 Notwithstanding the international requirement for an aircraft to have a Certificate of Airworthiness, there are many aircraft in the recreational, ex-military, vintage and amateur-built categories that are not able to qualify for the issue of a Certificate of Airworthiness. In such cases, the CAA may issue a Permit to Fly which allows aircraft to fly within United Kingdom airspace. This document confirms that an aircraft is fit to fly having regard to its overall design, construction and maintenance. Due to the reduced airworthiness status, to ensure that an adequate level of safety is maintained, additional limitations and conditions will be placed upon the operation of these aircraft.
- 1.4 The CAA will generally consider an application for a Permit to Fly on its individual merits. However Article 9A(1)(b) explains that a Permit to Fly will not be issued to an aircraft that is eligible for the issue of a Certificate of Airworthiness. Consequently, an aircraft of a civil design that has been 'series manufactured' for civil use, or an aircraft of a design which is military in origin that has been 'series produced' for civil use, a civil 'type certification' or 'type approval' will be required and only a Certificate of Airworthiness can be issued.

## 2 Issue and revalidation

- 2.1 Although a Permit to Fly is often thought of as embodying a lesser standard of airworthiness than a Certificate of Airworthiness, a Permit to Fly will only be issued on the basis that the aircraft to which it relates is airworthy. Under the provisions of the ANO, aircraft which are eligible for the issue of a Certificate of Airworthiness, or

are the subject of 'type certification' in another state will not be eligible for the issue of a Permit to Fly. This means that a Permit to Fly will normally only be issued to:

- a) ex-military aircraft;
- b) amateur-built aircraft;
- c) microlight aeroplanes;
- d) ultralight gyroplanes;
- e) ultralight helicopters; or
- f) vintage aircraft;

which are not eligible to hold Certificates of Airworthiness because they have either never been type certificated or the type certificate holder has withdrawn its support for the aircraft type.

2.2 A Permit to Fly will only be issued after the CAA, or a body approved by the CAA to carry out such work, has investigated the aircraft. This investigation will cover those elements necessary to make sure that the aircraft is fit to fly and has no adverse operating or handling characteristics. When issued, the Permit to Fly will be non expiring and will be revalidated by a Certificate of Validity, which will be conditional upon the completion of the periodic maintenance, inspections and checks. In addition, aircraft issued with a Permit to Fly may be required to undergo certain other periodic inspections in order to facilitate future revalidations of the permit. The actual process of permit issue and revalidation varies according to aircraft type and the conditions under which the individual aircraft operate.

2.3 For ex-military aircraft above 2,730 kg revalidation shall be recommended by an appropriately approved organisation, e.g. to BCAR A8-20. The revalidation process will, normally, involve maintenance inspections and test-flying to ensure that the aircraft is still able to meet the requirements of the Permit.

2.4 Once expired, the Certificate of Validity must be renewed before further flying is carried out. However, where necessary a Permit to Fly for test purposes may be issued, or the aircraft may be flown on 'B' conditions under the control of an organisation suitably approved by the CAA.

### **3 Limitations of use of a Permit to Fly aircraft**

3.1 In recognition of the lack of compliance with some of the standards of airworthiness, the issue and continued validity of a Permit to Fly will reflect the limitations under which an aircraft is permitted to operate, and will normally be more restrictive than the operating conditions permitted in the case of a comparable aircraft operating on a Certificate of Airworthiness. The limitations are as follows:

- a) Flights will normally be restricted to day Visual Flight Rules (VFR) only.
- b) Limitations may be placed upon the numbers of persons permitted to be carried in the aircraft, either in general, or in specific operational circumstances.
- c) Aircraft will be required to be placarded showing operating limitations and conditions.
- d) Aircraft will normally be restricted to flights within UK airspace unless the prior agreement of the country in which the flights are to be made is obtained.
- e) Aircraft will not normally be permitted to fly over congested areas.

## 4 Types of permit and approved organisations

- 4.1 Before a Permit to Fly can be issued, the build standard, history and the intended operational use of the aircraft will be investigated. This process remains essentially the same, irrespective of the basis upon which the application for a Permit to Fly is to be made.
- 4.2 The CAA has developed a number of different processes to deal with the specific needs of the industry, which reflect the varying nature of operations and the classifications of the various types of aircraft that may be eligible for a Permit to Fly. To assist with this, a number of organisations in industry have been approved by the CAA to carry out the associated investigative process and make recommendations for issue or revalidation of Permits to Fly, such that in many cases the applicant only needs to deal with these organisations and not with the CAA.
- 4.3 Permits to Fly will be issued according to the roles of the approved organisations involved as follows:
- a) The Popular Flying Association (PFA) will make recommendations for the initial issue of Permits to Fly and issue the subsequent Certificates of Validity for amateur-built aircraft that lie within specific weight and engine power limits, and also for certain other light aeroplanes, microlights and gyroplanes under their patronage.
  - b) The British Microlight Aircraft Association (BMAA) will make recommendations for the initial issue of Permits to Fly for amateur-built microlight aeroplanes and issue the subsequent Certificates of Validity for all types of aeroplanes under their patronage.
  - c) The CAA may require ex-military aircraft to be maintained and supported by organisations which have been approved according to BCAR Section A, Chapter A8-20. The initial Permit to Fly and Certificate of Validity will be issued by the CAA following the submission of design reports by the organisations approved under BCAR A8-20 and after a survey conducted by the CAA. Subsequent Certificates of Validity will be issued by the CAA, following recommendations for revalidation by the relevant BCAR A8-20 approved organisations.
  - d) Aircraft which are not maintained under the control of the approved organisations noted above will be investigated and surveyed directly by the CAA for the purpose of issuing a Permit to Fly, and the associated Certificates of Validity will be issued or re-issued subject to periodic and satisfactory inspection by the CAA.

## 5 Ineligible aircraft

- 5.1 Aircraft which are eligible for the grant of a Certificate of Airworthiness will be required to comply with the appropriate internationally recognised standards and will not normally be considered for the issue of the United Kingdom Permit to Fly. This includes, with the exception of microlight aeroplanes, all series built aircraft that have been built for civil use. It should be noted that an acceptance by another National Authority of an aircraft, without a Certificate of Airworthiness, to fly on a permit does not constitute a right for that aircraft to qualify for a UK Permit to Fly.
- 5.2 Exceptionally, individual aircraft which already hold a Permit to Fly may be permitted to continue to operate on this basis and type certificated aircraft may be issued with Permits to Fly for test purposes for a limited period in order to qualify for a Certificate of Airworthiness.

## Chapter 2 Qualifying for the Initial Issue of a Permit to Fly

### 1 General

- 1.1 The process associated with the issue of a Permit to Fly follows the same basic steps irrespective of the aircraft type, whether it is dealt with directly by the CAA, or by an approved organisation. The details are contained in BCAR Section A, Chapter A3-7 and include the following requirements:
- a) The aircraft must be UK registered.
  - b) An application for a Permit to Fly must be made.
  - c) The aircraft design basis must be reviewed and documented.
  - d) The standard of maintenance must achieve an airworthy condition to ensure that aircraft is fit to fly.
  - e) The aircraft must be inspected at various stages by the designated organisation during its construction.
  - f) The aircraft must be test-flown.
  - g) The aircraft build standard, modification record, maintenance record and operating history shall be available.
- 1.2 A Permit to Fly will not be issued to an aircraft which has formerly been issued with a Certificate of Airworthiness by an ICAO contracting state, unless it is no longer possible to fulfil the requirements for the issue of a Certificate of Airworthiness.

### 2 Amateur construction under the patronage of the Popular Flying Association

- 2.1 The amateur construction of an aircraft (i.e. an 'amateur-built' aircraft) from plans, or from a suitable kit, and under the auspices of the Popular Flying Association (PFA), will normally follow the detailed internal procedures of this organisation. For a 'first of type' project submission, the PFA will carry out a review of the aircraft design to assess its airworthiness, structural integrity and flight characteristics. The onus is on the aircraft designer to provide the design information and reports, etc. which will be required by the PFA in order to carry out this investigation. Where specific aspects of a design are found to be unsatisfactory, the PFA may require changes to be made to the design and material specifications in order to provide the appropriate margins of safety for the type.
- 2.2 Each airframe will be regarded as an individual project, notwithstanding, that other aircraft of the type may already have been built and be flying in the UK. The intended owner will normally undertake the aircraft project, and it is usual practice for inspectors, authorised by the PFA, to undertake periodic and phased inspections at various stages during the construction process. The aircraft may be supplied in kit form, or be built from a set of plans or drawings. Where a kit is used there are restrictions on the level of pre-assembly that can be done by the kit supplier, and the builder may not deviate from the plans or kit instructions unless the change is discussed with the PFA inspector and agreed by PFA Engineering. Under the current policy, an intended owner is not permitted to construct more than one example of a type at a time, i.e. it is not permissible to enter into 'series manufacture', or to enter into a commercial arrangement to have the aircraft built by a third party.

- 2.3 When completed, the aircraft will be subjected to a final inspection which will include such things as control systems, mass and balance checks, ground-running tests of the engine, and inspections and checks on the aircraft's systems. If these are satisfactory the aircraft will be issued with a 'temporary flight test authorisation' to allow it to be test-flown, and such test-flying will be carried out to an agreed 'flight test programme'. For 'first of type' aircraft the test-flights may also require the involvement of PFA or CAA test pilots to substantiate that the handling characteristics and operational performance are acceptable. Where unacceptable or marginal characteristics are noted, the PFA or CAA may require additional modifications or changes to be made prior to permit issue.
- 2.4 Upon completion of any required test-flying the aircraft records must be scrutinised by the PFA before recommending to the CAA that the aircraft should be issued with a UK Permit to Fly. As part of that recommendation, the PFA will provide the details of any particular operational conditions, including take-off and landing performance, that may apply to the specific aircraft and these will subsequently appear in the form of an 'operating limitations sheet' which forms part of the Permit to Fly, together with the normal conditions applicable to aircraft of this status. The essential operating limitations are also required to be placarded in the cockpit of the aircraft.

### **3 Amateur construction under the patronage of the British Microlight Aircraft Association**

- 3.1 The British Microlight Aircraft Association (BMAA) works in a similar manner to the PFA, but with a specific emphasis on microlight aeroplanes. A microlight may be classified as a 'type-approved', 'type-accepted' or 'amateur-built' aeroplane.
- 3.2 BMAA procedures require the supplier of microlight aeroplane kits, for what are termed 'series aircraft', to provide certificates guaranteeing that the kits conform to previously approved standards. The procedures also require that all investigative test-flying is carried out by BMAA qualified test pilots.
- 3.3 BMAA approved flight manuals are available for BMAA administered amateur-built aircraft and the aircraft are required to carry placards showing the operating limitations.

### **4 Amateur construction overseen by the Civil Aviation Authority**

- 4.1 When it is intended to build an aircraft from plans or from a kit, the Permit to Fly may be obtained directly from the CAA. The CAA will evaluate the design unless it has been previously investigated by an organisation approved for that purpose, e.g. the PFA. The CAA will also wish to oversee the aircraft build. To this end, the builder is expected to involve the CAA at various stages in the construction process and to keep them informed as to progress. No deviations from the plans or kit assembly instructions will be permitted unless a proposed change has the prior agreement of the CAA. Where necessary, the builder will have to substantiate the acceptability of the proposed change and this may require the additional involvement of a suitably approved design organisation.
- 4.2 Upon final inspection of the completed aircraft, the CAA will normally issue a Permit to Fly for test purposes and a test-flight will be carried out.
- 4.3 In addition to the basic application fee for a permit issue, the scheme of charges includes provision for the CAA to recover its costs when it has been directly involved in a project. This means that working hours incurred in the oversight of the

construction and certification of an aircraft will be recorded and invoiced according to an hourly charge rate. Consequently, applicants should bear these costs in mind and consider the option of building the aircraft under the auspices of the PFA or BMAA, which usually involves considerably lower charges.

## **5 Replica and specialist aeroplanes and racing aircraft**

- 5.1 A replica aircraft is a copy of an aircraft of historical significance which has been constructed to the original design, e.g. a newly constructed Avro 504. It may be possible for such a replica to be considered for the issue of a Permit to Fly on the basis of it being amateur-built, provided that it is not intended to be series manufactured. Approval for the construction of replicas will normally be limited to single examples which conform to the original design. Any design changes, which, for example, might be to improve the safety characteristics, or to allow substitution of obsolete materials, should be discussed and agreed with the CAA or, where applicable, the BMAA or the PFA.
- 5.2 The UK does not have any specific provision for the issue of a Permit to Fly for a specialist aeroplane e.g. the 'atmospheric research' aircraft operating in the USA. If an aircraft is to be used for an activity that falls within the definition of public transport or aerial work, a Certificate of Airworthiness will be required and the normal design and certification requirements for this will apply; even for a single example. However, where this is not the case, a specialist aeroplane may be able to operate under a Permit to Fly as if it were an amateur-built aircraft, provided that construction is limited to a single example.
- 5.3 The UK does not have provision for the issue of Permit to Fly certification to series built aircraft that are designed for the purposes of air racing. Permit aircraft that have been modified to race may remain on a Permit to Fly provided that the criteria for permit issue can still be met and the CAA is satisfied that the aircraft is fit to fly.
- 5.4 Where a person wishes to build an aircraft in any of the above categories, the proposal should be discussed with the CAA at the earliest opportunity.

## **6 Amateur-built helicopters**

- 6.1 A few types of light helicopter are available in kit form and may be eligible for a Permit to Fly. These helicopters will normally be classed as amateur-built aircraft and may be constructed by the applicant from a kit of a suitable standard agreed with the CAA.
- 6.2 Where the helicopter is a 'first of type' the investigative process undertaken by the CAA will involve a review of its design, construction and handling characteristics. If there is concern over the acceptability of some aspects, the CAA may require changes to be made. The final position will be reflected by plans or drawings which have been agreed and a kit of an accepted standard. These will be defined in an 'Airworthiness Approval Note' (AAN) which will be used to support the issue of a Permit to Fly.
- 6.3 The PFA is, currently, not approved to undertake the inspection of helicopters that are amateur-built. Therefore, the construction of such aircraft will normally be subject to periodic oversight by the CAA, who may require that an appropriately experienced licensed engineer is appointed to assist the builder.

## **7 'Type Approved' microlight aeroplanes**

- 7.1 A 'type approved' microlight is an aeroplane conforming to the definition contained in Article 129 of the ANO, and which has been designed in accordance with BCAR Section S, JAR-VLA or CS-VLA and manufactured by a CAA A1 approved organisation. The build standard of each individual aircraft will have been closely controlled, so that an individual aircraft can qualify for a Permit to Fly on the basis that it conforms to the same build standard as previous 'type approved' aircraft.
- 7.2 Type approved microlight aeroplanes are treated differently to other Permit to Fly aircraft in the following respects:
- a) They may be used for commercial flying training.
  - b) They are subject to stricter controls over replacement parts and the modifications that may be incorporated.
  - c) They may be hired under specific circumstances.

## **8 'Type Accepted' microlight aeroplanes**

- 8.1 Prior to 1984, microlight aeroplanes were not subject to the present standards of regulation and were not required to be issued with Permits to Fly. Many of these older aircraft are not able to meet full compliance with current airworthiness standards.
- 8.2 The 'type accepted' Permit to Fly has been introduced to cater for these older aircraft. It is issued after recommendation by the BMAA and is based upon partial compliance with BCAR Section S and evidence of an acceptable operating history by the type in question. Type accepted Permits to Fly are issued for:
- a) microlight aeroplanes which first flew before 1 January 1984; and
  - b) microlight aeroplanes which first flew before 1 January 1987 and which had an original empty weight of 70 kg or less.

## **9 Gyroplanes**

- 9.1 Many of the gyroplane designs that are currently available have their origins in aircraft developed in the USA, and these aircraft are operated on UK Permits to Fly.
- 9.2 Gyroplane aircraft are not generally subject to the requirements of type certification. However, BCAR Section T was introduced to define criteria for the design and manufacture of these aircraft, and a number of them have since been designed in accordance with these requirements. The CAA will normally deal with all 'first of type' designs in respect of the initial investigation and certification.
- 9.3 The refinement of existing designs with cosmetic and sometimes more substantial changes involving engines and rotor blades, has also resulted in a number of variations on the basic gyroplane designs. When presented for the first time, proposed changes will be evaluated against the relevant criteria in BCAR Section T and if acceptable, the revised design will be agreed by the CAA.
- 9.4 The Popular Flying Association (PFA) will normally be involved in the building, initial certification and subsequent revalidation of the Permits to Fly issued to gyroplanes that conform to designs which have previously been approved by the CAA. The PFA may also be involved in supporting the submission of revised designs for existing gyroplanes.



- 9.5 If an individual wishes to undertake series manufacture of a gyroplane design, the requirements for a BCAR A1 manufacturing organisation will normally be applied.

## **10 Ex-military aircraft**

- 10.1 If an aircraft is of military origin and is not eligible for a Certificate of Airworthiness, the CAA may consider an application for a Permit to Fly. Aeroplanes of greater than 2,730 kg MTWA, and rotorcraft of any weight, will be required to be supported by a maintenance organisation approved under BCAR Section A, Chapter A8-20, Group M5. Aeroplanes of 2,730 kg MTWA or below do not require the involvement of a BCAR A8-20 maintenance organisation
- 10.2 An applicant will also require the involvement of a design organisation approved in accordance with BCAR Section A, Chapter A8-20, Group E4. This organisation will catalogue the conformity of the aircraft build standard to the 'type design standard', the modification record and the maintenance history, and review the operational history of the type, in order to provide a report upon which the CAA can consider the issue of a Permit to Fly.
- 10.3 Ex-military aircraft have often been designed to requirements that differ substantially from those of civil aircraft. Consequently, the airworthiness review of an ex-military aircraft should consider associated issues such as the operational role of the aircraft and the accident record. If, on the basis of this evidence, the CAA is satisfied that the aircraft is fit to fly, it may be granted a Permit to Fly.
- 10.4 Ex-military aircraft will be classified as 'simple', 'intermediate' or 'complex' according to the definitions shown in BCAR Section A, Chapter A8-20. These classifications reflect the differences in technology, operational equipment and the flying and handling characteristics of the aircraft concerned. The more complex an aircraft is, the greater the level of organisational and operational support that will be required and, unless the CAA agrees alternative provision through a suitably competent design organisation, the continued involvement of the manufacturer will be required.
- 10.5 The CAA will issue Permits to Fly for ex-military aircraft after consideration of the recommendations and inspection reports submitted by the relevant BCAR A8-20 organisations, and will liaise with the BCAR A8-20 organisations concerning the detail, form and content of the inspections to be undertaken for this purpose.
- 10.6 In the case of ex-military aeroplanes of 2,730 kg MTWA or below, the CAA may interface directly with the applicant. The applicant will be expected to provide the CAA with sufficient information for development of an 'Airworthiness Approval Note' to record the basis upon which a Permit to Fly can be issued. The CAA may then, following the conduct of a satisfactory survey and investigation, and a satisfactory test-flight, issue a Permit to Fly.

## Chapter 3 Criteria for the Issue of a Permit to Fly

### 1 General

- 1.1 Before an aircraft can be issued with a Permit to Fly, its design must be shown to satisfy an acceptable 'basis for approval'. The criteria for approval that may be used are dependent upon the types of aircraft concerned and are listed in BCAR Section A, Chapter A3-7.
- 1.2 The procedure to be used depends upon the type of aircraft. In the case of a 'one-off', amateur-built aircraft, the 'basis for approval' will normally be developed during consultation between the applicant and the CAA, PFA or BMAA. Where a 'type approved' microlight aeroplane is concerned, the process is more formal and the requirements applicable at the date of application and any 'special conditions' and exemptions must be defined.
- 1.3 A 'special condition' is an extra requirement that is added to the basis for approval (e.g. if the aircraft has a novel feature not covered by the base airworthiness code). An aircraft may be exempted from the requirement to comply with the base code if, for example, the applicant has elected to comply with alternative requirements from another code.
- 1.4 Once an aircraft has been accepted for the issue of a Permit to Fly, the basis for its acceptance will be defined in a CAA, PFA or BMAA 'Airworthiness Approval Note'.

### 2 Microlight aeroplanes

- 2.1 The 'basis for approval' of most microlight aeroplanes is BCAR Section S. However, as long as a microlight aeroplane meets the definition in the ANO, then other airworthiness codes, such as JAR-VLA (Very Light Aeroplanes) or CS-VLA, or JAR-22 (Sailplanes and Powered Sailplanes) or CS-22, may be acceptable. In which case, there may be a few additional 'special conditions' applied concerning, for example, weight and balance and engine approvals.
- 2.2 It is also possible to use a mixture of two airworthiness codes as the bases for approval (e.g. BCAR Section S with JAR-VLA undercarriage requirements). However, a conservative approach should be employed as the various airworthiness requirements in a code frequently have a degree of interdependence which can result in a reduced level of safety if not respected.
- 2.3 A number of microlight aeroplanes built prior to the introduction of BCAR Section S or the other airworthiness codes, may be considered as holding 'grandfather rights' or being 'type accepted' for the issue of a Permit to Fly, subject to certain criteria for eligibility being met. New aircraft would not be accepted under this route.

### 3 Amateur-built aeroplanes (including aeroplanes constructed from kits)

- 3.1 The 'basis for approval' is dependent upon the established codes of airworthiness requirements as follows:

### Airworthiness Codes

Code UK	Max Weight	No. Seats	Stalling Speed
BCAR Section S	450 kg 300 kg	2 1	35 kt or 25 kg/m <sup>2</sup> (W/area)
JAR-VLA	750 kg	2	45 kt
JAR-22	750 kg  850 kg (powered)	2	80 km/hr (no ballast) 90 km/hr (with ballast)  3 kg/m <sup>2</sup> (W/span <sup>2</sup> ) (powered)
JAR-23 Normal	5,670 kg	9 (pax)	61 kt (single engine)
BCAR Section T	600 kg	2	N/A
BCAR Section VLH	750 kg	2	N/A
BCAR Section K	5,700 kg	N/A	N/A
FAR 23 Normal	5,670 kg	9 (pax)	N/A

- 3.2 In the case of imported aeroplanes, FAR 23 will usually be an acceptable basis, provided the parameters of the aeroplane lie within the applicability limits.
- 3.3 The airworthiness requirements to be applied depend on the date of the initial application, the weight, stall speed, maximum speed, number of seats, engine type, and complexity, etc. and the above table lists the implications of some of these factors.

## 4 Amateur-built helicopters

- 4.1 In the past, the basis for approval for most helicopters has relied upon service experience, test-flight and inspection (BCAR Section B, Chapter B3-7, Paragraph 3.4). However, because of the lessons that have been learned with the service experience procedure, and because of concerns about some of the new types of amateur-built helicopters becoming available, the CAA has developed BCAR Section VLH (Very Light Helicopters). This has brought amateur-built helicopters into line with the other amateur-built aircraft and now that BCAR Section VLH has been published, the procedure relying on service experience is no longer available for new types. However, service experience is still an acceptable means of compliance for some of the requirements in BCAR Section VLH.
- 4.2 Currently the limitations in the PFA's 'terms of approval' mean that applications for approval of all new types of amateur-built helicopter and for modifications to types already approved in the UK, have to be made to the CAA. These applications must be supported by an approved design organisation having an appropriate level of competence.
- 4.3 Due to the current safety record of amateur-built helicopters, and the limitations in BCAR Section VLH, Permits to Fly will not be issued for amateur-built helicopters with more than two seats.

## **5 Gyroplanes**

- 5.1 In the past the basis for approval for most gyroplanes has been service experience, test-flight and inspection, but because of the poor safety record of gyroplanes in the UK, BCAR Section T has been revised. Consequently, the service experience route is no longer available for new types of gyroplane.
- 5.2 Gyroplanes are eligible for type approval if they are designed and manufactured by an A1 approved company and can be shown to meet BCAR Section T, i.e. although all new gyroplanes are currently amateur-built, it would be possible for gyroplanes to be 'series built' by an A1 approved company if the design was also 'type approved'.
- 5.3 The limitations in the terms of approval granted to the PFA mean that, in the case of all new types of gyroplane, and in respect of significant modifications to types already approved in the UK, applications for approval must be made directly to the CAA and these must be supported by a group or organisation having an appropriate level of competence.
- 5.4 Due to the poor safety record of gyroplanes, and because of the limitations imposed by BCAR Section T, Permits to Fly will not, normally, be issued to gyroplanes with more than two seats.

## **6 Ex-military aircraft**

- 6.1 The basis for approval of ex-military aircraft is service experience (BCAR Section A, Chapter A3-7, paragraph 3.4).
- 6.2 When assessing service experience, incidents can be ignored if it is clear that they were due to specific military operations that would not occur in civil use.
- 6.3 The service experience acceptance criteria depend on a number of factors including the complexity criteria (see BCAR Section A, Chapter A8-20) and the mass of the aircraft.

## **7 The use of service experience as part of the approval evidence**

- 7.1 Service experience can be very useful in providing an alternative means of demonstrating that an aircraft or component is safe, but it should be used with caution, especially where recreational aircraft are concerned. It can be difficult to determine the numbers of accidents that have occurred, their causes and the aircraft utilisation, all of which will be relevant to an assessment of airworthiness.
- 7.2 In the case of the first of a new aircraft type to come on the register, an in-depth test-flight will be needed to show compliance with the flight requirements. Amateur-built aeroplanes will always be required to be thoroughly tested in flight. However, as experience is gained with the first aircraft, it should be possible to scale down the amount of test-flying and to concentrate on those areas where variations are being experienced.

## Chapter 4 Modifying or Repairing a Permit To Fly Aircraft

### 1 Who to apply to for approval of a modification or repair

Applications for the approval of modifications or repair in respect of Permit to Fly aircraft shall be made to the organisations shown in the table below.

Permit to Fly Category	Approving Organisation	Notes
Ex-military aircraft administered by CAA	CAA	CAA Design and Production Standards Division (DPSD) will require a submission for major alteration to be made via an approved company.
Ex-military aircraft administered by PFA	PFA	---
Amateur-built aircraft administered by CAA	CAA	CAA Design and Production Standards Division (DPSD) will require submission for major modification to be made via an approved company.
Amateur-built aircraft administered by PFA (including microlight aeroplanes)	PFA	A 'letter of no technical objection' from the designer will be required by the PFA in respect of most modifications.
Historic or other aircraft administered by PFA	PFA	---
Gyroplanes	PFA	Minor modifications
Gyroplanes	CAA	Major modifications
In-production type approved microlight aeroplanes (major modifications)	The Manufacturer	May not be possible – consult manufacturer and BMAA for requirements.
In-production type approved microlight aeroplanes (minor modifications)	BMAA	BMAA may seek a 'letter of no technical objection' from the manufacturer.
Out of production type approved microlight aeroplanes	BMAA	BMAA will require a 'letter of no technical objection' from the manufacturer for major modifications and may, also, seek one for minor modifications.
Amateur-built microlight aeroplanes administered by BMAA	BMAA	---
Type accepted microlight aeroplanes	BMAA	---

Notwithstanding the guidance contained in the table, an application can still be made directly to the CAA, but considerably higher costs may result.

## **2 Contents of an application for a modification**

- 2.1 All of the organisations who are able to accept applications for modifications will publish their own guidance for that which should be contained within the application. However, in general, all applications should contain the following:
- a) Drawings.
  - b) Justification, including structural evidence, where appropriate, that the modification is essentially safe and viable.
  - c) A report showing compliance with the relevant paragraphs of the applicable certification standard.
  - d) If necessary, a proposal for any testing that may be required before the modification can be approved.
  - e) A revised mass and balance report for the modified aircraft (or if not yet modified, a prediction of the effect on mass and centre of gravity).
- 2.2 Modifications are treated according to whether they are classified as 'major' or 'minor'. In general, applications for Minor Modifications will be treated with less rigour and are likely to be less expensive to implement than Major Modifications. Precise definitions will vary between organisations. The following relative differences should be considered:
- a) A Major Modification is one that involves a change to the state of an aircraft which affects the design of the primary structure, flying controls, aerodynamic surfaces, or engines, or the flight characteristics or its ground handling. Alternatively, the term may be applied to a collection of minor changes which in combination result in a complex situation.
  - b) A Minor Modification is a change in the design or construction of an aircraft which does not meet the above classification.

## **3 Where to find help in preparing a submission for a modification**

- 3.1 In most cases, an application can be made directly to the organisation concerned by the owner. However, this is not always wise. Engineering submissions can require mathematical analysis, or presentation in particular ways. For this reason it is often best for an applicant, particularly when a major modification is involved, to enlist the help of either a professional engineer or a CAA approved company.
- 3.2 For Major Modification applications to the CAA, it is likely that the application will have to come from an approved organisation listed in CAP 475.

## Chapter 5 Maintenance Inspection and Revalidation of an Aircraft Issued with a Permit to Fly

### 1 General

- 1.1 Every aircraft requires periodic inspection and maintenance in order for it to remain in an airworthy condition. Whether used extensively or not, it will suffer from exposure to conditions that may initiate the onset of corrosion and general deterioration. This will be particularly true when it is routinely kept outdoors, or when used infrequently. Aircraft that are flown on a regular basis will accumulate normal wear and tear of moving components and this can extend to include static components through exposure to flight and ground loads and vibration. Extensive flying will obviously expose the aircraft to more extensive wear and in some cases may require additional inspections to be made. For example, an aircraft used for training or landing practice will require more detailed and regular inspection and in particular of the undercarriage and brake systems.
- 1.2 The responsibility rests with the aircraft owner who must ensure that the aircraft is serviced and inspected periodically. Maintenance must be carried out methodically to a maintenance schedule to ensure that the inspections are timely and appropriate. For very basic aircraft, this may be a simple schedule of visual inspection points. More complex aircraft may, however, require a detailed maintenance schedule that takes into account the specific recommendations of the aircraft or component manufacturer, including where appropriate, component overhaul requirements and the accomplishment of structural non-destructive inspection (NDI) techniques.
- 1.3 A record of the inspections and checks, as well as any defects found, must be kept so that a history of the aircraft can be built up. The entries of work carried out should be recorded in the aircraft engine and propeller log books, as required by Article 17 of the Air Navigation Order 2000 (ANO). The entries required are those listed in Schedule 6 of the ANO and must include details of inspections, repairs, replacements, modifications and overhauls carried out. It should be noted that whilst the log books may contain a summary of the work carried out, the extent to which this can be done may be dependent upon the existence of more detailed inspection worksheets. These will, in turn, form part of the aircraft log book and must be retained.
- 1.4 If as part of the process of qualifying for the issue of a Permit to Fly a Permit to Test or Ferry is required, these are issued by the CAA.
- 1.5 If a Permit Flight Release Certificate (PFRC) is required in accordance with BCAR Section A, Chapter A3-7, the whole aircraft is to be certified for flight by an authorised person.
- 1.6 If any maintenance is carried out, except that carried out by the pilot in accordance with paragraph 1.9, while a PFRC is in force, a 'Permit Maintenance Release' (PMR) will be required to certify the work carried out.
- 1.7 When a Permit to Fly (other than a Permit to Fly for test or ferry purposes) is issued:
- The aircraft will also be issued with a 'Certificate of Validity' (C of V) which will then be re-issued annually.
  - A PFRC will not be required, if the C of V remains valid.
  - A PMR will be required following any maintenance other than that covered by paragraph 1.9.

- d) If the C of V is allowed to expire, a 'Permit to Test', a PRFC and a PMR will be required.
- 1.8 Unless the aircraft is maintained under the auspices of the PFA, BMAA or an organisation approved under BCAR A8-20 (where the responsible persons are authorised under the terms of the organisation approval), the PFRC and PMR must be certified by a person authorised by the CAA in accordance with BCAR Section A Chapter A3-7.
- 1.9 The holder of a valid pilot's licence who is the owner or operator of an aircraft issued with a Permit to Fly of 2,730 kg MTWA or below may, in accordance with BCAR Section A, Chapter A3-7 Appendix 2, carry out the maintenance prescribed in Regulation 16 of the Air Navigation General Regulations 1993.

## **2 Maintenance of amateur-built aircraft (including microlights)**

- 2.1 Amateur-built aircraft are normally operated under the auspices of the PFA or BMAA but may occasionally be operated under direct supervision from the CAA. The PFA and BMAA have a system involving nominated inspectors, who have been authorised by the relevant organisation to inspect the aircraft owned and operated by members of their organisations. The owner is responsible for the maintenance management of the aircraft, but must liaise with the nominated inspector to ensure that the relevant requirements of the agreed maintenance schedule or programme are carried out. The owners normally carry out some maintenance themselves but, if required, the nominated inspector will either be available to assist, or be able to provide advice and guidance on the technical aspects. The owners of these aircraft are likely to have varying degrees of expertise so it is essential that the nominated inspector supervises the owner's activities appropriately. On completion of the work, for any maintenance other than that in the pilot maintenance category, the log book entry must be signed off by the inspector and a PFRC or PMR raised as appropriate. The scope of work that can be carried out in the pilot maintenance category without inspector involvement depends on the type of aircraft concerned and details are available from the PFA, BMAA or CAA, as appropriate.
- 2.2 Designers of aircraft that will be amateur-built may provide some information regarding the operation and maintenance of the aircraft. This may be in a variety of different formats and of varying degrees of detail. Ideally, this information will include a schedule of tasks and inspections recommended for the particular type. However, in most cases it is unlikely that this will exist, particularly when an aircraft has been built from plans. Consequently, the PFA and BMAA will require their members, if a type specific schedule is not available, to follow a generic maintenance schedule for inspections, covering the technologies incorporated in the aircraft, which the nominated inspector will certify before further flight.
- 2.3 The PFA identifies certain routine maintenance tasks and inspections to be carried out by the aircraft owner. If the owner performs work required for the 'annual check' for revalidation of the Permit to Fly, the nominated inspector will need to be satisfied that the aircraft is airworthy before making the appropriate recommendation to PFA Engineering. Work carried out on an aircraft between annual checks, in particular damage rectification, may require the re-issue of the PMR certificate, in which case, the nominated inspector will need to be involved.
- 2.4 The BMAA operates a similar scheme to the PFA and the requirements for re-issue of a flight release certificate are defined in the BMAA procedures. It should be noted that amateur-built microlight aeroplanes may often be similar to aircraft available as type approved microlights. The manufacturer may, therefore, produce maintenance



information that is appropriate to and directly applicable to such amateur-built aircraft. The BMAA will advise on these issues.

- 2.5 Amateur-built aeroplanes are either made to plans or assembled from a kit. Where construction is based on supplied plans, the owner can make parts to replace those that become defective, provided this is done under the auspices of the PFA or BMAA inspector as appropriate. If the aircraft is kit-built, the kit manufacturer must be contacted to obtain replacement parts. If this is not possible, the PFA or BMAA may approve the use of an alternative part.
- 2.6 It should be noted that radio equipment installed in an amateur-built aircraft must be of a type approved by the CAA and be installed in an approved manner. Whilst the installation at first build may satisfy this requirement it is also required that the equipment be maintained in a serviceable condition. Where the equipment consists solely of VHF communication transceivers these may be disconnected, replaced and reconnected by the owner, as permitted under Regulation 16 of the Air Navigation General Regulations. The disturbance of other parts of the system, e.g. the aerial, is subject to the requirements of paragraph 5.9.
- 2.7 If the CAA directly oversees the construction of an amateur-built aircraft, the issue and revalidation of its Permit to Fly, the CAA will agree the maintenance requirements that must be observed. The CAA will also authorise the engineering staff nominated by the owner to support and certify any work performed on the aircraft, upon being satisfied that such staff are competent.

### **3 Maintenance of 'type approved' microlight aeroplanes**

- 3.1 Type approved microlights, built by approved microlight manufacturers, are designed against an appropriate design code and manufacturing programme for the aircraft type. As part of these requirements, the manufacturer is usually obliged to provide a maintenance manual and instructions. It is also likely that they will provide continued airworthiness data for the aircraft. These may take the form of service instructions or service bulletins etc.
- 3.2 A type approved microlight is designed to a specific standard and it is important that replacement parts conform to that standard. Consequently, alterations will not normally be permitted unless they are provided by a suitably approved design organisation. Where the type approval holder no longer exists, the BMAA must be consulted as it has procedures for overseeing the manufacture and release of replacement parts.

### **4 Maintenance of aircraft formerly issued with a Certificate of Airworthiness**

- 4.1 An aircraft that would have normally qualified for a Certificate of Airworthiness may, have been issued with a Permit to Fly if it was no longer being supported by a type certificate holder or manufacturer. These aircraft were manufactured under a type certificate and, the design and maintenance documented.
- 4.2 The documentation provided by the manufacturer will, normally, consist of maintenance manuals, service manuals and other service information. A structural repair manual giving details of permitted repairs on the aircraft structure may also be available. An aircraft owner must not deviate from the procedures in these manuals, unless the change is supported by the manufacturer or another organisation approved by the CAA.

- 4.3 Owners of aircraft which have been manufactured according to a type certificate or an equivalent standard, will normally be required to use the appropriate replacement parts specified by the original manufacturer. Where the manufacturer is no longer supporting the aircraft type it may be possible to obtain alternative parts which can be used in lieu of the original specification; these will include items made under a Federal Aviation Administration (FAA) Parts Manufacturing Authorisation (PMA) for use on products of American origin. Unless specifically approved by the CAA, PMA parts may not be used on an aircraft originating in another State of Design. Unapproved parts, those not approved either by the manufacturer or through a PMA approval, may not be used unless approved for installation according to a suitably approved minor or major modification.
- 4.4 Where the manufacturer lists details of overhaul periods or the limited life of certain critical components, these shall be complied with unless otherwise agreed by the CAA.
- 4.5 Airworthiness Directives, mandatory modifications and inspections, or airworthiness instructions of a mandatory nature, which are applicable to an aircraft type operating under a Certificate of Airworthiness, will apply to aircraft of the same type even if these are operated on a Permit to Fly. See also paragraph 5.8.

## **5 Maintenance of ex-military aircraft**

- 5.1 An ex-military aircraft will have been maintained in accordance with well defined maintenance programmes and schedules which took into account the operational environment and the way the aircraft were used. They may have included specialised checks such as non-destructive testing and also have maintenance actions on operational equipment. It is important that all of these requirements, where appropriate, are complied with during the maintenance.
- 5.2 The maintenance data will be agreed by the CAA and this will be referenced in the AAN associated with the issue of the Permit to Fly. In the case of ex-military aircraft this will normally refer to the military publications for the aircraft type. The civil operation of the aircraft will not usually be as demanding as that in military service. The maintenance schedule for the aircraft will need to be reviewed and amended to take account the utilisation and type of operation. The flying hour related tasks may need to be converted to appropriate calendar periods.
- 5.3 Some aircraft are fitted with fatigue meters to record details of the usage spectrum during each flight. This data is used in conjunction with defined procedures to calculate the used life of the aircraft which take into account the method of operating. An example of this is aerobatic flying which may accumulate fatigue at three or four times the rate of normal flying. This method of working ensures that due attention is paid to maintenance activities according to the use of the aircraft. Where fatigue meters are not used, the CAA may still require usage factors to be considered and taken into account, dependent upon the original design criteria.
- 5.4 Ex-military aircraft may have specific life limits for the aircraft structure or critical components defined by the manufacturer, these limits must not be exceeded. Where the manufacturer permits further operation for a period dependent upon the embodiment of additional modifications by more comprehensive and in-depth maintenance checks, these must be carried out before an extension to the operating life will be agreed. There will be no extension of aircraft life limits beyond those that are defined and supported by the manufacturer.

- 5.5 Ex-military aircraft can have safety equipment necessary for the type and nature of military operations, primarily ejector seats. BCAR Section A, Chapter A8-20 requires special provision for the maintenance of this equipment included in the maintenance programmes. It is also required that appropriate organisations are available to provide for the overhaul of these items. Ex-military aeroplanes above 2,730 kg MTWA and ex-military rotorcraft of any weight are required to be maintained by organisations approved to BCAR A8-20. This imposes restrictions on the level of maintenance that may be performed by the owner.
- 5.6 Spares for ex-military aircraft should, whenever possible, be obtained from original sources or through known and reputable distributors. It is important that the owners of ex-military aircraft ensure that spares are compatible with the modification standard of the aircraft, are serviceable and within specified operational and storage limitations. Additional information relating to procurement of spares can be found in BCAR A8-20 Supplement 3.
- 5.7 Where the aircraft is one which is of an historic nature, original spares may not be available. Agreement from the CAA must be obtained to manufacture spares to original drawings through an approved supplier. An organisation that is approved under BCAR A8-20 may also be able to manufacture certain items locally as agreed by the CAA. Where the aircraft is being extensively restored or substitutions are being made for materials that are no longer available, the agreement of the CAA must be obtained.
- 5.8 Where the aircraft is ex-military and not subject to the requirements of BCAR Section A, Chapter A8-20, the CAA will oversee the project directly, will agree the maintenance that is required and will authorise the nominated engineering staff. Alternatively, the aircraft may be transferred to PFA patronage. In either case, the owner remains responsible for ensuring that the required maintenance is carried out.

## **6 Approval of maintenance schedules**

- 6.1 The general requirements for the approval of maintenance schedules and programmes are in BCAR Section A, Chapter A7-5 and Section B, Chapter B7-5. Whilst these are applicable to aircraft operating on a Certificate of Airworthiness, the general principles behind the maintenance schedule development still apply.
- 6.2 BCAR Section A, Chapter A3-7 specifies that an applicant for a Permit to Fly must demonstrate how the aircraft has been maintained and overhauled, including those elements relating to lifed components. It also states that applicants must demonstrate how they will provide the competence and the resources necessary to maintain the aircraft in the future. In this respect, a maintenance schedule will go some way to satisfying these requirements.
- 6.3 The supplements to BCAR Section A, Chapter A8-20 also contain information on what is expected of the organisations in respect of the development of maintenance schedules for ex-military aircraft, and include information on typical features of these aircraft, such as ejector seats, their pyrotechnics and the procedures to be followed.
- 6.4 The PFA and BMAA will provide additional guidance to their members regarding acceptable programmes for aircraft under their control.

## **7 Service information provided by manufacturers**

- 7.1 An aircraft in service may suffer a failure of a component, or of a system, which gives rise to concern about the continuing airworthiness of the aircraft type. In the case of

a type certificated aircraft, or a type approved microlight, the manufacturer may issue service information. This may take the form of a service bulletin, or service letters, etc. that define the inspections, modifications or other work which is considered necessary to determine if the failure condition is present or to correct an unsafe condition. A manufacturer may assign the term 'mandatory' to these inspections. This may be for reasons of product liability, so the BMAA or the PFA, must be consulted before any action is taken.

- 7.2 In the case of an aircraft built from a kit to a design that is also offered by the manufacturer as a production aircraft, the availability of service information for the production aircraft may not have direct relevance to the kit built product. The BMAA or PFA should be consulted for clarification. The PFA or BMAA may also subject aircraft operating under their control to inspection or modification action based upon in service experience and identified problems.
- 7.3 For type certificated aircraft operating on a Permit to Fly, the National Aviation Authority (NAA) of the State of Design will normally issue an 'Airworthiness Directive' or equivalent notice to address potential hazards. For such aircraft the CAA will normally require compliance with these Airworthiness Directives as notified in CAP 476 'Mandatory Permit Directives'.

## **8 'Mandatory Permit Directives' and 'Airworthiness Directives'**

- 8.1 It is necessary for the owner to ensure that mandatory inspections and Airworthiness Directives for the aircraft, engines and its components are carried out. Where the CAA identifies an unsafe condition, on an aircraft type with a Permit to Fly, a 'Mandatory Permit Directive' may be issued requiring inspection of the aircraft for that particular defect and its rectification. The PFA and BMAA also issue safety bulletins as part of their continued airworthiness support for those types operating within their organisations.
- 8.2 Where the aircraft is supported by a manufacturer but is not designed and built to a type certificated standard, e.g. an ex-military aircraft, the manufacturer may identify a hazardous condition and issue appropriate service literature. However, the NAA of the State of Design will not normally issue an airworthiness directive since the aircraft is not type certificated. In such a case the UK CAA will consider the content and implications of the service literature that has been issued and, if appropriate, will issue a Mandatory Permit Directive (MPD) for the aircraft based upon that information. The MPD will state the work that is required and the timescales in which it must be accomplished.
- 8.3 Where the aircraft is not supported by a designated manufacturer or type certificate holder the CAA may decide to issue an MPD. This will, in the absence of specific inspection criteria issued by the manufacturer, normally result from a defect report or an occurrence report sent to the CAA. The CAA will decide the nature of the inspection required and issue an MPD.
- 8.4 Certain equipment, such as the engine or propeller may be to a type certified design, in which case, the requirements of any airworthiness directive in respect of that equipment should be complied with.

## **9 Maintenance and installation of radio equipment**

- 9.1 Attention is drawn to the installation and maintenance of radio equipment. In accordance with ANO Article 15:

- a) It must be of a type approved for use by the CAA;
- b) It must be installed in an approved manner;
- c) It must be maintained in a serviceable condition, with appropriately authorised radio engineers certifying for any such work.

Approval of the radio installation in an aircraft with a Permit to Fly forms part of the aircraft radio licence issued by CAA Directorate of Airspace Policy.

## Chapter 6 Operation of a Permit to Fly Aircraft

### 1 General

- 1.1 Permits to Fly contain certain conditions that govern the manner and extent to which the aircraft may be operated. These include the limitations on the operation of the aircraft, such as speeds, engine performance etc. Other issues that may be addressed are take-off and landing performance, the number of occupants and limitations on areas that can be over flown and under what flight conditions.
- 1.2 All ex-military aircraft of greater than 2,730 kg MTWA are required, as a condition of the Permit to Fly, to operate in accordance with CAP 632 – Operation of 'Permit-to-Fly' Ex-Military Aircraft on the UK Register. CAP 632 requires that operators define various operational parameters and constraints in an Organisational Control Manual (OCM). The OCM is subject to agreement by the CAA before operations can commence. The CAA will audit operations at regular intervals, normally annually, to ensure compliance with both the operational constraints of the Permit to Fly and the method of operations as detailed in the OCM.
- 1.3 Aircraft operating under a Permit to Fly are not allowed to carry out public transport flights. Except in the case of type approved microlight aeroplanes, which can in certain circumstances be hired out by a flying club to its members.
- 1.4 The operation of an aircraft is normally restricted to recreational or private flying, but aerial work may be permitted in the following circumstances:
- Flying displays, associated practice, test and positioning flights or the exhibition or demonstration of the aircraft, when only the minimum crew should be carried - Article 9A(2)(a) of the ANO 2000 refers. Pilots must consult CAP 403 - Flying Displays and Special Events: A Guide to Safety and Administration Arrangements and Article 130(6)(a) of the ANO for licence privilege considerations.
  - Flying instruction in type approved microlight aeroplane (applicable in the case of factory built microlight aeroplanes): Article 9A(2)(c) refers.
  - Flying training in ex-military aircraft with a Maximum Take-off Mass Authorised (MTMA) exceeding 2,730 kg. In order to facilitate proper pilot conversion training in ex-military aircraft, depending upon the particular circumstances, the CAA may grant an exemption to the provisions in Article 9A (2)(a) of the ANO 2000, in order to permit full remuneration for pilot conversion training (aerial work) to be undertaken in ex-military aircraft when these are operated under the terms of CAP 632; AIC 65/2003 (White 83) refers, Article 130(1) (b) of the ANO 2000 also refers.
- 1.5 Certain other activities which would normally be classed as aerial work may be carried out by Permit to Fly aircraft subject to specific limitations as follows:
- The towing of gliders and hang gliders by microlight aeroplanes; and
  - Flights classed as private under Article 130(1)(b) of the ANO, undertaken for the purpose of giving instruction, when the only payment made is for the services of an instructor.

### 2 Operational limitations

- 2.1 The operational limitations applicable to aircraft with a Permit to Fly are contained in the following documents:

- a) Article 9A of the ANO 2000; for those limitations of a general nature that are applicable to all classes of aircraft operating on a Permit to Fly. The principal limitation is that Permit to Fly aircraft are restricted to flight by day and in accordance with Visual Flight Rules (VFR) unless the prior permission of the CAA has been obtained. Permission for flights under Instrument Flight Rules (IFR) will only be given in exceptional circumstances, such as, to meet a long distance ferry requirement. In such a situation the alleviation would be subject to agreement on aircraft instrumentation and pilot qualifications.
- b) The individual aircraft's Permit to Fly; for those limitations which are applicable to either that individual aircraft or that class of aircraft. In particular, restrictions on flight over congested areas will be contained in the individual Permit to Fly.
- c) CAP 632 - Operation of Permit to Fly Ex-Military Aircraft on the UK Register, which deals with the operational control of ex-military aircraft with an MTMA in excess of 2,730 kg.

### **3 Alleviations from the public transport or aerial work requirements applicable to aircraft operating on a Permit to Fly**

#### 3.1 Hiring of aircraft. The following applies:

- a) An aircraft issued with a Permit to Fly may not be hired, unless it is a single seat aircraft with an MTMA of not more than 910 kg – Article 130(2) refers.
- b) An aircraft issued with a Permit to Fly may not undertake aerial work except in particular circumstances – Article 9A(2)(a) refers.
- c) An aircraft issued with a Permit to Fly may fly for the purpose of the giving of flying instruction provided this is done under the auspices of a flying club and in accordance with the conditions listed on the individual Permit to Fly – Article 9A(2)(c) refers.
- d) A microlight aeroplane issued with a Permit to Fly may be hired for a private solo flight when operated under the auspices of a flying club and in accordance with the conditions listed on the individual Permit to Fly.

#### 3.2 Charity flights are not permitted with passengers if the aircraft is operating on a Permit to Fly - Article 130(7) of the ANO and AIC 76/2003 (White 88) refers.

#### 3.3 Cost sharing is permitted for aircraft operating on a Permit to Fly subject to compliance with the requirements in Article 130(8) of the ANO.

#### 3.4 Group ownership is permitted for aircraft operating on a Permit to Fly subject to compliance with the requirements in Article 130(10) of the ANO.

### **4 International flights by aircraft operating on a Permit to Fly**

#### 4.1 The Permit to Fly is not an internationally recognised document and aircraft operating on them are not certified to an internationally recognised standard. The Permit to Fly is, therefore, only valid within the UK airspace unless:

- a) an exemption has been granted by the CAA permitting a flight or flights abroad (this exemption is normally given as standard wording on the Permit to Fly), and
- b) permission in writing has been obtained from the national aviation authority of each country that is to be overflown, or in which a landing is to be made, for the flight or series of flights.

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- 4.2 Recommendation INT. S.11-1 of the European Civil Aviation Conference (ECAC), adopted at the eleventh Intermediate Session of ECAC in June 1980, agreed that Member States should accept amateur-built aircraft, with a Certificate of Airworthiness or a Permit to Fly issued by another Member State, to fly in their country without any restrictions other than those stated in the Certificate of Airworthiness or the Permit to Fly. CAA Airworthiness Notice No. 52 provides information on how the CAA has implemented the spirit of this recommendation for foreign aircraft operating in UK airspace. For UK Permit to Fly homebuilt aircraft wishing to fly in the airspace of other ECAC Member States, reference should be made to the country concerned regarding conditions of entry.
- 4.3 A number of organisations (e.g. the British Microlight Aircraft Association and the Popular Flying Association) have obtained a standing over-flight permission for Permit to Fly aircraft within their area of interest with some European countries, notably France. Full details of the standing permissions can be obtained from the appropriate association, but pilots should note that ensuring compliance with the requirements of a foreign National Aviation Authority remains their responsibility.



## Chapter 7 Publications

### 1 Amateur construction

#### a) PFA:

PFA Inspectors' Handbook;

PFA Website: [www.pfa.org.uk/](http://www.pfa.org.uk/);

PFA Information Letter 7 – How to Register a Project;

PFA Information Letter 20 – Homebuilt Aircraft Projects;

PFA Information Letter 17 – Placards and Labels;

PFA Information Letter 19 – Information required on Completion of your Project.

#### b) BMAA:

Technical Information Leaflets (TIL):

i) TIL 16 Interpretation of BCAR Section S;

ii) TIL 18 Importing of foreign microlight aeroplanes;

iii) TIL 229 Amateur design.

BMAA Website: [www.bmaa.org](http://www.bmaa.org)

c) CAP 659 - Amateur-Built Aircraft. (New edition to be published later this year.)

### 2 Obtaining Permits to Fly

a) CAP 553 - BCAR Section A - (Chapter A3-7).

b) PFA Information Letter 11 - Second Hand Projects.

c) BMAA/AW015 - Application for type acceptance of an old aeroplane.

### 3 Modification of an aircraft

a) CAP 553 - BCAR Section A.

b) PFA Information Letter 4 - Can I modify my own PFA aircraft?

### 4 Certification Codes

a) CAP 553 - BCAR Section A.

b) CAP 554 - BCAR Section B.

c) CAP 482 - BCAR Section S.

d) CAP 643 - BCAR Section T.

e) JAR-VLA.

f) BCAR VLH.

g) JAR-22.

h) BMAA TIL 31.

i) PFA Information Letter 13 – The Investigation of Amateur Designed Aircraft.

## **5 Maintenance and repair practices and schedules**

- a) CAP 455 – Airworthiness Notices.
- b) CAP 553 - BCAR Section A (Chapter A8-20 Ex-military Aircraft).
- c) CAP 554 - BCAR Section B.
- d) CAP 562 – Civil Aircraft Airworthiness Information and Procedures (CAAIP).
- e) CAP 661 - Mandatory Permit Directives.
- f) PFA Notes to PFA Inspectors 'SPARS'.
- g) BMAA Inspectors' Handbook.
- h) BMAA TIL 20 – Maintenance.
- i) PFA – Gyroplane Maintenance.
- j) FAA AC 43-13.
- k) PFA Information Letter 15 The Permit Renewal Flight Test.
- l) PFA Information Letter 1 Pilot Maintenance.
- m) PFA Information Letter 3 Can I Self-maintain a PFA Aircraft?

## **6 UK Air Law**

CAP 393 - Air Navigation: The Order and the Regulations (ANO) Articles 8, 9A and 9B.

## **7 Flying abroad**

- a) ICAO Annex 8.
- b) PFA Information Letter 8 – Permit Aircraft Flying Abroad.

## **8 Operations**

- a) CAP 632 - Operation of Permit to Fly Ex-Military Aircraft on the UK Register.
- b) CAP 403 - Flying Displays and Special Events: A Guide to Safety and Administration Arrangements.
- c) CAA Website: [www.caa.co.uk](http://www.caa.co.uk).
- d) PFA Information Letter 9 – Can I Learn to Fly in a PFA Aircraft?
- e) PFA Information Letter 6 – Conditions of a Permit to Fly.