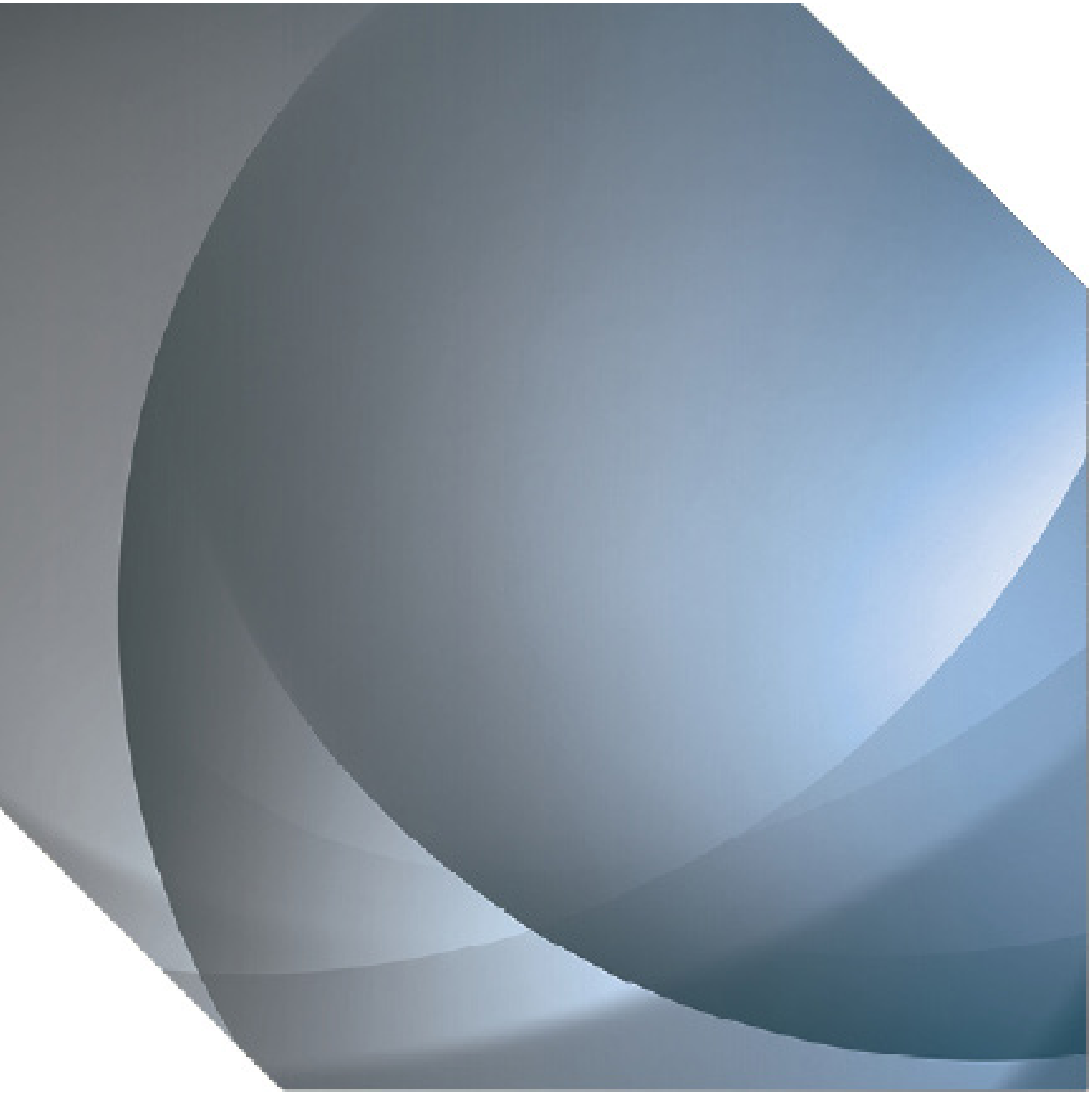
Safety and Airspace Regulation Group

Civil Aviation Authority

BCAR Section B

Airworthiness Procedures where the CAA does not have Primary Responsibility for Type Approval of the Product

CAP 554



Safety and Airspace Regulation Group

Civil Aviation Authority

CAP 554

BCAR Section B

Airworthiness Procedures where the CAA does not have Primary Responsibility for Type Approval of the Product

www.caa.co.uk

26 September 2014

ISBN 978 0 11792 875 6

Issue 6, 31 January 2003
Issue 6 incorporating amendment 1, 21 November 2003
Issue 6 incorporating amendment 2, 25 February 2008
Issue 7, 5 October 2011
Issue 8, 26 September 2014

Enquiries regarding the content of this publication should be addressed to:
Intelligence Strategy and Policy, Safety and Airspace Regulation Group, Civil Aviation Authority, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR.

The latest version of this document is available in electronic format at www.caa.co.uk, where you may also register for e-mail notification of amendments.

Published by TSO (The Stationery Office) on behalf of the UK Civil Aviation Authority.

Printed copy available from:
TSO, PO Box 29, Norwich NR3 1GN
Telephone orders/General enquiries: 0844 477 7300
Fax orders: 0870 600 5533
www.tsoshop.co.uk
E-mail: caa@tso.co.uk
Textphone: 0870 240 3701

List of Effective Pages

Chapter	Page	Date
	iii	26 September 2014
	iv	26 September 2014
Contents	1	26 September 2014
Contents	2	26 September 2014
Revision History	1	26 September 2014
Revision History	2	26 September 2014
Revision History	3	26 September 2014
Revision History	4	26 September 2014
Revision History	5	26 September 2014
Foreword	1	26 September 2014
Foreword	2	26 September 2014
Foreword	3	26 September 2014
Abrvs and Defs	1	26 September 2014
Chapter B1-2	1	26 September 2014
Chapter B2-2	1	26 September 2014
Chapter B2-2	2	26 September 2014
Chapter B2-2	3	26 September 2014
Chapter B2-2	4	26 September 2014
Chapter B2-2	5	26 September 2014
Chapter B2-3	1	26 September 2014
Chapter B2-3	2	26 September 2014
Chapter B2-4	1	26 September 2014
Chapter B2-5	1	26 September 2014
Chapter B2-5	2	26 September 2014
Chapter B2-5	3	26 September 2014
Chapter B2-5	4	26 September 2014
Chapter B2-5	5	26 September 2014
Chapter B3-1	1	26 September 2014
Chapter B3-3	1	26 September 2014
Chapter B3-6	1	26 September 2014
Chapter B3-7	1	26 September 2014
Chapter B3-8	1	26 September 2014
Chapter B3-9	1	26 September 2014
Chapter B3-11	1	26 September 2014
Chapter B4-2	1	26 September 2014
Chapter B4-2	2	26 September 2014
Chapter B4-2	3	26 September 2014
Chapter B4-2	4	26 September 2014
Chapter B4-2	5	26 September 2014
Chapter B4-4	1	26 September 2014
Chapter B4-4	2	26 September 2014
Chapter B4-4	3	26 September 2014
Chapter B4-8	1	26 September 2014
Chapter B4-8	2	26 September 2014
Chapter B4-8	3	26 September 2014
Chapter B4-8	4	26 September 2014
Chapter B4-8	5	26 September 2014
Chapter B4-8	6	26 September 2014
Chapter B4-8	7	26 September 2014
Chapter B4-10	1	26 September 2014
Chapter B4-10	2	26 September 2014
Chapter B4-10	3	26 September 2014
Chapter B5-2	1	26 September 2014
Chapter B5-4	1	26 September 2014
Chapter B5-6	1	26 September 2014
Chapter B5-6	2	26 September 2014
Chapter B5-6	3	26 September 2014
Chapter B5-7	1	26 September 2014
Chapter B5-7	2	26 September 2014
Chapter B5-7	3	26 September 2014
Chapter B5-7	4	26 September 2014
Chapter B5-8	1	26 September 2014
Chapter B6-1	1	26 September 2014
Chapter B6-4	1	26 September 2014
Chapter B6-5	1	26 September 2014
Chapter B6-6	1	26 September 2014
Chapter B6-8	1	26 September 2014
Chapter B7-2	1	26 September 2014
Chapter B7-2	2	26 September 2014
Chapter B7-2	3	26 September 2014
Chapter B7-3	1	26 September 2014
Chapter B7-4	1	26 September 2014
Chapter B7-4	2	26 September 2014
Chapter B7-4	3	26 September 2014
Chapter B7-4	4	26 September 2014
Chapter B7-4	5	26 September 2014
Chapter B7-4	6	26 September 2014
Chapter B7-4	7	26 September 2014
Chapter B7-4	8	26 September 2014
Appendix 1 to B7-4	1	26 September 2014
Appendix 1 to B7-4	2	26 September 2014
Appendix 1 to B7-4	3	26 September 2014
Appendix 1 to B7-5	1	26 September 2014
Chapter B7-6	1	26 September 2014
Chapter B7-9	1	26 September 2014
Chapter B7-10	1	26 September 2014

INTENTIONALLY LEFT BLANK

Contents

Section B - Airworthiness Procedures where the CAA does not have Primary Responsibility for Type Approval of the Product

Revision History

Issue 6, amendment 1 21 November 2003

The purpose of this Amendment 1 to Issue 6 is to publish BCAR Working Draft Papers 913, 914, 915, 916, 917, 919, 920, 921, 922 and 923 as Requirements together with editorial changes convenient to be incorporated at this time.

Pages dated '31 January 2003 (Corr.)' indicate pages that have been corrected as a result of errors in the original 31 January 2003 issue. This indicates changing all occurrences of Constructor to Manufacturer in order to bring BCAR B into line with ICAO terminology. Marginal lines have been included to highlight where the corrections are.

Technical Changes

The following Chapters have been amended as shown:

Chapter	Description
Foreword	A caveat has been added to the Foreword to clarify that BCAR B does not apply to those aircraft that have been the responsibility of the European Aviation Safety Authority since 28th September 2003.
B1-2	'NOTE' in 2.1.2 amended to reflect recent changes to the Air Navigation Order.
B2-5	Deletion of the word 'instruments' from paragraph 1.1.
B2-3	Deletion of incorrect reference from paragraph 2.
B3-4	Incorporating Paper No 919. Updated to reflect current practices and LAMS 1999, there are no changes to the requirements. Editorial changes to clarify the text have also been embodied.
B3-5	Incorporation of Paper 913. Addition of new text to paragraph 1.3 a) ii) which focuses the concentration of airworthiness flight testing on older aircraft where more significant problems have been found to lie, as well as moving the previous NOTE to become a continuation of 1.3 a) ii) rather than a separate NOTE.
B3-11	Change of contact details in paragraph 1, removal of incorrect information in paragraph 2.1 and removal of old contact name in paragraph 5.
B5-3	Deletion of an old reference from paragraph 5.1 d).
B5-6	Deletion of reference to cancelled material.
B5-7	In paragraph 9.3 reference to MMELs being 'despatched' has been removed, MMELs are now available on the CAA website. In paragraph 9.5 TRs are also now available via the CAA website, they are not necessarily accompanied by a 'list of effective Temporary Revisions' as the TRs themselves are incorporated in the MMEL download. TRs are no longer published on yellow paper.
B6-2, Appendix 1	Deletion of reference to cancelled material.
B6-4, Appendix 1	Deletion of paragraph reference from the title in paragraph 1.
B6-5	Change of cross-reference in paragraphs 1.3, 3 and 5.
B7-6	Insert new cross-reference in paragraph 3.

B7-10	Deletion of paragraph reference in title of paragraph 3.
A8-7	Deletion of reference to cancelled material.
A8-9 and its appendices	Incorporation of Paper 916. Changes made to increase clarity of existing text.
A8-15	Incorporation of Paper 917. This Chapter has been amended to reflect current practices. It now refers to the Groups I and II, and Procedures 1 and 2 of Chapters A3-4(B3-4). A reference to CAP 520 "Light Aircraft Maintenance", has been added.
A8-16	Deletion of cancelled reference.
A8-20	Incorporation of Paper 923.
A8-20, Appendix 1	Incorporation of Paper 922.
A8-20, Supplement 1	Incorporation of Paper 920.
A8-20, Supplement 2	Incorporation of Paper 921.
A8-20, Supplement 3	Incorporation of Paper 914.
A8-20, Supplement 4	Incorporation of Paper 915.

Issue 6, amendment 2 — 25 February 2008

The purpose of this Amendment 2 to Issue 6 is to withdraw the Supplement to Section B, Sub-Section A8 Approvals. Editorial changes convenient to be included at this time have also been incorporated.

Technical Changes

The following Chapters have been amended as shown:

Chapter	**Description**
Explanatory Note	The 'Explanatory Note' has been replaced by a 'Revision History', to keep the format in line with Civil Aviation Publications.
Foreword	NOTE b) to paragraph 1 deleted as no longer applicable and subsequent sub-paragraphs renumbered. NOTE c) to paragraph 1 updated to include reference number to European Commission Regulation (EC) No. 2042/2003. Paragraph 3.1 reference to Air Navigation Order updated to 2005. Paragraph 6.2 deleted as no longer applicable. Paragraph 8 word 'England' changed to 'UK'.
B1-2	Amended to reflect changes in Categories of Certificates of Airworthiness and update cross references to the Air Navigation Order.
Supplement to Section B	The Supplement to Section B, Sub-Section A8 Approvals, has been withdrawn. Sub-Section A8 is published in CAP 553, BCAR Section A. Copies are available from the CAA website at www.caa.co.uk/CAP553 Details for purchasing printed copy are given on the reverse of the inside cover of this publication.

Issue 7 05 October 2011

The purpose of this Issue 7 is to publish new Chapters: B3-1 and B6-1 and a complete revision of Chapters: B3-3 and B3-5. Some editorial changes and updates, convenient to be included at this time, have been incorporated.

Technical Changes

The following Chapters have been amended as shown:

Chapter Description	Description
Foreword	Paragraph 3.1 has been amended to revise the ICAO compliance statement to include ICAO 'recommended practices' as well as standards.
Abbreviations and Definitions	This new Section has been added for clarification.
B3-1	New Chapter has been compiled from existing BCAR Chapter B3-2 'Issue of Certificate of Airworthiness', Part 21 'Airworthiness Certificates', and Part M, 'Airworthiness Review' and 'Airworthiness Review Certificate'. It is intended to replace the existing Chapter B3-2 and introduce the concept of a non-expiring Certificate of Airworthiness and a National Airworthiness Review Certificate (National ARC). Changes have been made to accommodate the Air Navigation Order and BCAR Section L Engineer Licensing.
B3-2	Chapter has been deleted as it is replaced by B3-1.
B3-3	This existing BCAR B Chapter has been amended to make it complementary to the new Chapters. The opportunity has been taken to revise the procedures contained in this Chapter to reflect current CAA policies and practice with respect to Airworthiness Check Flights.
B3-4	Chapter has been deleted as it is no longer valid.
B3-5	This existing BCAR B Chapter has been amended to make it complementary to the new Chapters. The opportunity has been taken to revise the procedures contained in this Chapter to reflect current CAA policies and practice with respect to Airworthiness Check Flights.
B6-1	This new Chapter has been compiled from Part M, Subparts A to D and H, the latter Subpart is to replace the Certificate of Release to Service (CRS), aspects of Chapter B6-2 'Maintenance of Aircraft' and Chapter B6-7 'Certification of Inspections, Overhauls, Modifications, Repairs and Replacement'. Chapters B6-2 and B6-7 will be replaced by this new Chapter B6-1.
B6-2	Chapter has been deleted as it has been replaced by new Chapter B6-1.
B6-7	Chapter has been deleted as it has been replaced by new Chapter B6-1.
B7-2	This Chapter has been updated to revise the procedures to reflect current CAA policies and practice with respect to Flight Manuals.

NOTE: Although this is a re-issue of CAP 554, BCAR Section B, those Chapters unaffected by the changes described above have not been revised at this time, with the result that some cross references to other publications will be out of date. It is planned to completely revise these chapters in future planned amendments, when these cross references will be updated.

Issue 8 26 September 2014

The purpose of Issue 8 is to publish revised Chapter B2-5 and delete or amend several other chapters. Chapter B2-5 has been thoroughly revised to introduce text which permits the acceptance of STCs without CAA technical involvement, using criteria taken from the relevant EU/US and EU/Canada bilateral safety agreements.

Several chapters have been deleted and replaced with references to the corresponding chapters in BCAR Section A (CAP 553). Some editorial changes and updates, convenient to be included at this time, have also been incorporated.

As a result of the extensive change to BCAR Section B, including the revision of B2-5 and the deletion of some other Chapters, BCAR Section B is completely re-issued as Issue 8.

Chapter	**Description**
Abbreviations and Definitions	Some definitions have been updated.
B2-5	This Chapter has been thoroughly revised to take account of the changes previously made, such as the introduction of Chapter A8-21 'Approval of Organisations Responsible for Design or Production'. Additionally, this chapter has been thoroughly revised to introduce text which permits the acceptance of changes to an aircraft without CAA technical involvement.
B3-1 B3-3	The text of these Chapters has been replaced with references to the corresponding Chapters A3-1 and A3-3 in BCAR Section A (CAP 553).
B3-5	This Chapter has been deleted as it is no longer valid. From 1 July 2013 the CAA announced that it is no longer a requirement to carry out a check flight to qualify for the **renewal** of a National Airworthiness Review Certificate or Certificate of Validity. The responsibility of deciding when a check flight is required, as part of the continuing airworthiness oversight of the aircraft, rests with the aircraft pilot-owner, maintainer, or Continuing Airworthiness Management Organisation (CAMO), as applicable.
B3-6 B3-7 B3-8 B3-11 B5-2	The text of these Chapters has been replaced with references to the corresponding Chapters A3-6, A3-7, A3-8, A3-11 and A5-2 in BCAR Section A (CAP 553).
B5-3	This Chapter has been deleted as it is no longer valid.
B5-4 B5-8	The text of these Chapters has been replaced with references to the corresponding Chapters A5-4 and A5-8 in BCAR Section A (CAP 553).
B6-1	The text of this Chapter has been replaced with reference to the corresponding Chapter A6-1 in BCAR Section A, CAP 553. Additional guidance material was added to Chapter A6-1 at Issue 8, as a result of the change in policy regarding Check Flights.
B6-4 B6-5	The text of these Chapters has been replaced with references to the corresponding Chapters A6-4 and A6-5 in BCAR Section A (CAP 553).
B6-6	The text of this Chapter has been replaced with reference to the corresponding Chapter A6-6 in BCAR Section A (CAP 553). Chapter A6-6 was thoroughly revised and updated at Issue 8 of CAP 553.
B6-8	

B7-3	The text of these Chapters has been replaced with references to the corresponding Chapters A6-8 and A7-3 in BCAR Section A (CAP 553).
B7-5	This Chapter has been deleted. The corresponding Chapter A7-5 was deleted and its content was published as new Supplement 4 to Chapter A6-1 at Issue 8 of BCAR Section A (CAP 553).
B7-8	This Chapter has been deleted. The corresponding Chapter A7-8 was deleted and its content was published as Supplement 5 to Chapter A6-1 at Issue 8 of BCAR Section A (CAP 553).
B7-9 B7-10	The text of these Chapters has been replaced with references to the corresponding Chapters A7-9 and A7-10 in BCAR Section A (CAP 553).

INTENTIONALLY LEFT BLANK

Foreword

1 Effects of EASA

The following procedural requirements are applicable to all those aircraft and products for which British Civil Airworthiness Requirements are NOT superseded by Regulation (EC) No. 216/2008 of the European Parliament and of the Council of 20 February 2008, or any Implementing Rules made under that Regulation.

For those aircraft and products for which an EASA Type Certificate has been issued, EASA Implementing Rule Part 21 provides the relevant procedural requirements.

NOTE: The CAA interprets that these British Civil Airworthiness Requirements apply only to those aircraft:

a) excluded from the EASA scope by Article 1 and Annex II of Regulation (EC) No. 216/2008; or

b) those to which any derogation to national regulations applies under European Commission Regulation (EC) No. 748/2012 "the Certification Regulation"; or

c) those to which any derogation to national regulations applies under European Commission Regulation (EC) No. 2042/2003 "the Continuing Airworthiness Regulation" established under Article 7 of the Regulation up until 28 September 2008.

2 Purpose

British Civil Airworthiness Requirements (hereinafter referred to as the "Requirements") of which Section B is a constituent part, are published by the Civil Aviation Authority (hereinafter referred to as the "CAA"). They comprise minimum requirements and constitute the basis for the issue of approvals and certificates required by the current Air Navigation Order.

3 General

3.1 The Civil Aviation Authority (Chicago Convention) Directions 2007, issued by the Department for Transport (DfT), require the Civil Aviation Authority (CAA) to ensure that it acts consistently with the obligations placed on the UK under the Convention on International Civil Aviation (Chicago Convention) of December 1944.

This document is published in support of the CAA's discretionary powers contained in the Air Navigation Order and includes requirements based on certain International Standards and Recommended Practices (SARPs) contained in Annexes to the Chicago Convention.

It is the policy of the CAA to have reference to this document when exercising the discretionary powers referred to above and, in particular, it will exercise those powers to ensure the effective implementation of any such requirements based on SARPs.

3.2 Compliance with the procedures in Section B is, normally required. The CAA may accept proposals to vary the procedures in a particular case, provided such variations give, at least, an equivalent level of safety to that intended by the requirements.

3.3 Section B contains Certification and Approval procedures for products, first certificated by an Authority other than the CAA, for which UK Certification or Approval is required. In this case, although CAA has responsibilities under the ANO in relation to the operation of such products on the UK Register, certain primary responsibilities defined in ICAO Annex 8 are those of the Authority of the State of Design.

NOTE: For products first certificated or approved by the CAA, for which the CAA has primary responsibility as the Authority of the State Design. BCAR Section A contains Certification and Approval procedures. This responsibility is of particular significance in relation to ensuring the continued airworthiness of the product in operation, whether in the UK or elsewhere.

3.4 Major aviation products are increasingly those of collaboration between manufacturers of more than one country. Nevertheless it remains important, particularly in the context of continued airworthiness, that the primary responsibility be identified with one Authority. The Procedures of Section A and B are intended to cover these circumstances.

3.5 Reflecting the collaborative nature of manufacture, the functions of the National Authorities are often also undertaken jointly or in collaboration. The provisions of Bilateral and Multilateral Agreements and Arrangements between nations on airworthiness matters have been developed more extensively and BCAR Sections A and B take account of the related procedures at least in principle; the details of these procedures have so far varied significantly according to the particular arrangements within which a project is undertaken.

3.6 Supply of Material to the CAA. Where, in compliance with the requirements, material (e.g. manuals, documents) is required to be sent to the CAA, the consignor shall ensure, before despatch, that he has paid, or has arranged to pay, all charges necessary to cover delivery of the material to the CAA Safety Regulation Group, at the address given at the end of this FOREWORD, in writing, without any charge to the CAA. (Free Domicile.).

4 Interpretation

4.1 The Requirements, with or without explanatory matter, should not be regarded as constituting a text book of current aeronautical knowledge. The interpretation of the Requirements against a background of such knowledge is essential.

4.2 Where necessary Appendices are supplied which provide acceptable interpretation of requirements, state recommended practices, or give additional information.

4.3 Some of the Chapters in Section B include Supplements which contain technical procedures applicable to the subjects in the associated Chapters.

4.4 Mandatory clauses are invariably denoted by the use of "shall" or "must"; "should" or "may" are used in the text to introduce permissive or recommended clauses.

4.5 Imperatives such as "ensure", "prevent" and "shall be designed", imply that the applicant, before claiming compliance with the requirement in question, will take all the steps that are deemed to be necessary in the light of the knowledge and techniques available at the time.

4.6 It is implicit in requirements expressed qualitatively (e.g. "readily visible", "adequately tested", etc.) that the CAA will adjudicate in cases where doubt exists.

5 Editorial Presentation

5.1 Section B is divided into seven Sub–sections numbered consecutively. The Sub–sections are further divided by subjects into Chapters, the numbering of each Chapter being associated with its Sub–section (e.g. Sub–section B2 contains Chapters B2–3, etc.).

5.2 A list of the subjects and the numbers of the Chapters is given in the CONTENTS.

5.3 A system of progressive paragraph numbering is used, the number of digits being kept to a maximum of three by associating the system with paragraph headings. A paragraph heading applies to all succeeding paragraphs until another titled paragraph with the same, or a smaller number of digits occurs.

6 Amendment and Issue

6.1 The printed version of the Section, which is identified by an Issue No. and date (e.g. Issue 1 dated 1st July, 1989) will be deemed to be amended by each BCAR Amendment appropriate to the Section which is issued subsequent to the date of Issue of the printed version.

6.2 Material differences from the previous issue of each page are indicated with a marginal line.

6.3 The issue or revision date is shown at the foot of each page.

The significance of the wording is as follows:

a) **Date (in format dd Month yyyy)** – The first version to appear in the Section;

b) **Revised (date)** – Revisions, indicated by marginal lines, have been introduced at the revision date;

c) **Reissued (date)** – The text on the page has not changed from the previous issue or amendment, but the page has been reissued because of movement of text on the page.

NOTES: 1 In some instances although a Chapter has been revised and is annotated accordingly it may not have been necessary to make any amendment to its Appendix or Supplement, in such cases the Chapter and its Appendix or Supplement would bear different dates.

2 Pages that bear the issue date and the abbreviation 'corr.' indicate pages that have been corrected due to errors in the original issue.

7 Effective Date

New requirements and amendments in BCAR Amendments are effective from the date printed on them.

8 Applications and Enquiries

Applications for permission to reproduce any part of the Requirements and any enquiries regarding their technical content should be addressed to the CAA Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR, UK. This address should be used when requesting forms or when making applications for Certificates of Airworthiness, etc., and any services normally rendered by the Safety Regulation Group.

INTENTIONALLY LEFT BLANK

Abbreviations and Definitions

Abbreviations

CAMO	Continuing Airworthiness Management Organisation
CAT	Commercial Air Transport

Definitions

Certificate for Commercial Operations

A Certificate for Commercial Operations, other than for commercial air transport (as used in Chapter B6-1), is defined as any operation where a certificate or permission is required to perform a commercial flying operation.

Commercial Air Transport

Commercial Air Transport Flight' means a flight which is required to be operated in accordance with EU-OPS or a flight which would, if undertaken by an EASA aeroplane registered in a Member State be so required: and an aircraft flies for the purpose of commercial air transport if it flies on a commercial air transport flight.

Commercial Operations

Any operation of an aircraft, in return for remuneration or other valuable consideration, which is available to the public or, when not made available to the public, which is performed under a contract between an operator and a customer, where the latter has no control over the operator. For the purposes of BCAR Section A, Commercial Operations includes Public Transport (see below), and Aerial Work.

Large Aircraft

For the purposes of BCAR Section B, a large aeroplane is defined as weighing more than 5700 kg (12,566 lb), and a large helicopter is defined as weighing more than 3175 kg (7000 lb).

Operator

'Operator' is any legal or natural person, operating or proposing to operate one or more aircraft.

Organisation

An 'Organisation' is a group of persons, formed for a specific purpose and possessing a legal identity.

Public Transport

'Public Transport' is defined in Article 260 of the Air Navigation Order 2009.

State Aircraft

For the purposes of BCAR Section B, 'State Aircraft' means an aircraft carrying out customs, police, search and rescue, fire-fighting, coastguard or similar activities or services and which is not a military aircraft.

INTENTIONALLY LEFT BLANK

Sub-Section B1
General

Chapter B1-2 Categories of Aircraft

1 Introduction

The Certificate of Airworthiness or Permit to Fly imposes conditions affecting the manner in which an aircraft may be maintained and operated, and the purposes for which it may be used. The conditions are imposed in the following manner:

a) By placing an aircraft in Categories which indicate the uses for which the aircraft is Approved;

b) By indicating either in the Certificate of Airworthiness or Permit to Fly or in their associated documents the detailed limitations which must be observed.

2 Categories and Purposes

2.1 The categories in which an aircraft may be placed are as follows:

2.1.1 **Certificates of Airworthiness**

a) Standard Category;

b) Special Category.

2.1.2 **Permit to Fly**

NOTE: A Permit to Fly may be issued or validated in respect of an aircraft, in accordance with Articles 21, 22, 23 or 24 of the Air Navigation Order. The CAA shall refuse the issue of a permit to fly if it appears to the CAA that the aircraft is eligible and ought to fly under and in accordance with a certificate of airworthiness.

2.2 The purposes for which the aircraft may fly are as follows:

a) **Standard Category:** Any purpose;

b) **Special Category:** Any purpose, other than public transport, specified in the Certificate of Airworthiness but not including the carriage of passengers unless expressly permitted;

c) **Permit to Fly:** Any purpose, other than public transport or unless expressly permitted aerial work, specified on the Permit to Fly.

NOTE: The Air Navigation Order 2009 Article 16 restricts an aircraft in the respect of which a Permit to Fly has been issued to flights beginning and ending in the United Kingdom. The CAA may consider granting an exemption under Article 242 from this part of the Order.

Flights over or into another country by an aircraft in respect of which either a Special Category Certificate of Airworthiness or a Permit to Fly has been issued and, in the case of a Permit to Fly, an exemption has been granted, will normally require the permission of the Authority of that country.

INTENTIONALLY LEFT BLANK

Sub-Section B2
Approval of the Type Design

Chapter B2-2 Type Certification

1 Introduction

1.1 A Type Certificate issued by the CAA constitutes a statement that the design of the aircraft type to which the Certificate refers and of the variants specified on the Data Sheet has been Approved by the CAA.

1.2 Applicants for the UK Certification of foreign constructed aircraft should be aware that, in accordance with the requirements of BCAR Section B, all such aircraft, irrespective of their size, will normally be subject to investigations by the CAA in order to establish, taking into account their design, construction, modification standard and original certification basis, that a level of airworthiness equivalent to that provided by United Kingdom airworthiness standards has been met. However, in order to achieve this, the principles of granting UK Type Certification by accepting (validating) the certification approval granted by the Authority of the state of manufacture, will be used as far as possible. The degree by which the certification of the Authority of the state of manufacture can be taken account of, and the amount of additional CAA investigation required, will depend on various criteria as covered in 4.1, 4.2 and 4.3. The CAA will also require knowledge of the arrangements for post-certification design support in order to be satisfied that this airworthiness standard may be expected to be sustained after certification.

1.3 When a UK Type Certification has been granted, all aircraft of a type which conform to the defined standard would qualify for a Certificate of Airworthiness, provided the condition of the aircraft concerned was acceptable to the CAA.

2 Scope of Application of the Type Certificate

The issue of a United Kingdom Type Certificate is a pre-requisite to the issue of a Certificate of Airworthiness in the Transport, Aerial Work or Private Category (see Chapter B1–2) for an aircraft of more than 2730 kg maximum authorised weight, where an aircraft of that type has not previously been issued with a United Kingdom Certificate of Airworthiness in that category. Where it is not intended to apply for a Certificate of Airworthiness, the CAA will issue a Type Certificate for type designs of aircraft of more that 2730 kg maximum authorised weight, subject to the appropriate requirements being met.

NOTE: The CAA will not normally issue Type Certificates for aircraft where maximum authorised weight is 2730 kg or less, or for a type of aircraft of which examples have previously been issued with a United Kingdom Certificate of Airworthiness.

3 Initial Procedure for Obtaining the Type Certificate

The application for the issue of a Certificate of Airworthiness on CA Form 3 (see Chapter B3–1) will also serve as an application for a Type Certificate. No separate application will be needed. Where the applicant is not seeking the issue of a Certificate of Airworthiness, application shall be made by letter to the CAA for the issue of a Type Certificate, and such a letter shall include an undertaking that the applicant will pay the CAA costs. Application should be made sufficiently in advance of the required certification date to allow time for the CAA investigations (including approval of the Flight Manual, see 4.4)

to be completed. The CAA will, on request, provide an estimate of the costs of an investigation, particularly where visits to a foreign manufacturer are involved.

4 Types for which a UK Type Certificate or Certificate of Airworthiness has Not Previously Been Issued

4.1 Design Investigation – General

4.1.1 The CAA investigation will be directed primarily to areas where the airworthiness standards as applied by the original certificating Authority may not in the view of the CAA, be equivalent to the UK airworthiness standards as reflected in the appropriate BCAR, JAR, CAA Airworthiness Notices, etc. Compliance with the requirements of the UK air navigation legislation in respect of mandatory equipment and operating performance will also be investigated.

4.1.2 The extent and depth of the CAA design investigation will vary according to the design features of the aircraft, including in particular the type of powerplant. (See paragraphs 4.2 and 4.3).

4.1.3 As a result of its design investigation, the CAA may prescribe Additional Requirements or Special Conditions, and the certificating Authority of the country of origin may be asked to certify that compliance with such Additional Requirements or Special Conditions has been established.

4.1.4 The associated procedures for certificating foreign engine and propeller types are contained in BCAR Chapters B4–2 and B4–4.

4.2 Design Investigation – Piston-engined Aircraft

4.2.1 Conventional piston-engined aeroplanes and rotorcraft, the Maximum Take-off Weight Authorised (MTWA) of which does not exceed 2730 kg in any Category and conventional piston-engined aeroplanes not exceeding 5700 kg in the Private Category or Aerial Work Category, which have been designed, constructed and certificated, and are likely to be supported, to airworthiness standards which the CAA accepts as being broadly equivalent to UK standards, will normally be investigated only in respect of appropriate CAA Airworthiness Notices, of Statutory requirements concerning noise certification, and of UK air navigation legislation for Transport Category certification. The engines and propellers of such aircraft types will be dealt with in the same way.

4.2.2 Aircraft as specified in paragraph 4.2.1 but having unconventional design features or which are pressurised, or are intended for aerobatics may be the subject of more detailed investigation, particularly in respect of matters related to these features.

4.2.3 For piston-engined aircraft not specified in paragraph 4.2.1 or 4.2.2 the general principles of paragraph 4.1 will be applied.

4.3 Design Investigation – Turbine-engined Aircraft

4.3.1 Turbine-engined aircraft in any certification category except for those specified in paragraph 4.3.2, will be subjected to investigation in depth in accordance with the principles of paragraph 4.1.

4.3.2 For single turbine-engined aircraft, the MTWA of which does not exceed 2730 kg, the principles of paragraph 4.1 will be applied. However, in considering the depth of the investigation (paragraph 4.1.2 above), those features of the design which are simple, conventional and similar to previously certificated types will not normally need to be investigated. However, the type will be investigated in respect of appropriate CAA Airworthiness Notices, of Statutory requirements concerning noise certification, and the UK air navigation legislation for Transport Category certification.

4.4 **Performance and Flight Manual**

4.4.1 **Normal Design Investigation**. For aircraft (aeroplanes and rotorcraft) investigated in accordance with 4.1, a UK Flight Manual must be provided which contains the limitations, procedures and performance information in accordance with the BCAR or JAR regulations applicable to the type of aircraft being investigated. This Flight Manual will normally be produced by the manufacturer and the Authority of the state of manufacture will normally be asked to approve the UK Flight Manual on behalf of the CAA.

4.4.2 **Piston-Engined Light Aircraft (Aeroplanes and Rotorcraft) in the Private and Aerial Work Categories.** For aircraft as specified in 4.2.1 (except for those required to be certificated in the Transport Category) the Flight Manual or Pilot's Operating Handbook, as appropriate, (including all relevant supplements) which has been approved by the Authority of the state of manufacture for use on that aircraft, will be accepted by CAA without investigation.

4.4.3 **Piston-Engined Light Aircraft (Aeroplanes and Rotorcraft) in the Transport Category.** For aircraft as specified in 4.2.1 which are required to be certificated in the Transport Category, adequate information must be provided in the Flight Manual or Pilot's Operating Handbook, as appropriate, to satisfy the UK air navigation legislation. In particular, performance information shall be scheduled to satisfy the applicable performance operating rules. All other aspects of the Flight Manual, or Pilot's Operating Handbook, as appropriate, (including all relevant supplements), will be dealt with as in 4.4.2.

4.4.4 In all cases three electronic copies of the Flight Manual or Pilot's Operating Handbook, as appropriate, are required to be submitted in English in accordance with BCAR Chapter B7–2.

4.5 **CAA Flight Testing** (See also BCAR Chapter B2–3). Regardless of the extent of the design investigation, an aircraft of the same design standard as that submitted for certification shall be placed at the disposal of the CAA so that, at its discretion, CAA test pilots may:

4.5.1 For aircraft other than those covered by 4.2.1 ,4.2.2, or 4.3.2:

a) carry out any flight tests necessary as part of the design investigation to confirm compliance with the appropriate BCAR, JAR, Special Conditions, Additional Requirements, or other regulations applicable to the type;

b) become familiar with the flight characteristics of the aircraft;

c) gain information for use in preparing CAA Airworthiness Flight Test Schedules.

4.5.2 For aircraft covered by 4.2.1:

a) carry out only those flight tests necessary to establish compliance with the relevant sections of the UK air navigation legislation when the aircraft is required to be certificated in the Transport Category;

b) accomplish items b) and c) from 4.5.1;

4.5.3 For aircraft covered by 4.2.2 or 4.3.2:

a) carry out any flight tests as for 4.5.1 a) above only as necessary to assess the special features of the design which are subject to detailed investigation;

b) carry out flight tests as for 4.5.2 a) above as necessary when the aircraft is required to be certificated in the Transport Category;

c) accomplish items b) and c) from 4.5.1.

4.6 **Post-Certification Design Support by Manufacturer and Certification Authority**

Unless the CAA is already aware of them, confirmation will be required of the arrangements made by the manufacturer and the Authority of the state of manufacture for providing the necessary continuing airworthiness support after certification.

5 Change of Category

5.1 Aircraft types investigated in accordance with 4.1 will be eligible for certification in any Category (Private, Aerial Work or Transport). In changing from Private to Aerial Work or Transport Category, modifications or additional equipment installations may be necessary to satisfy Airworthiness Notices or UK air navigation legislation. It is normal that the investigations carried out in accordance with 4.1 will have identified such changes.

5.2 Where a piston-engined aeroplane the MTWA of which is between 2730 kg and 5700 kg has been certificated in the Private or Aerial Work Category (in accordance with 4.2.1) and application is subsequently made for certification in the Transport Category, a design investigation (as in 4.1), flight testing and Flight Manual review will normally be necessary, as a result of which CAA may prescribe Additional Requirements or Special Conditions with which the Authority of the state of manufacture may be asked to establish compliance.

5.3 In the case of piston engined aircraft below 2730 kg MTWA certificated in the Private or Aerial Work Category, the additional design investigation necessary for certification in the Transport Category will be limited to differences arising out of the Airworthiness Notices and UK air navigation legislation.

6 Series Aircraft

Where an aircraft type has already been certificated in the UK, Series aircraft may normally be accepted without further technical investigation. However, for an aircraft to be accepted as a Series aircraft, it is essential that it and its equipment, build standard, and means of compliance with any specified CAA Special Conditions or Additional Requirements, should be demonstrated as being substantially similar to another aircraft of the type or variant thereof accepted for UK certification; significant differences must be identified and may necessitate further investigation (see 7 below).

7 Derivative and Modifications

7.1 **New Models and Derivatives**

Whenever new models or derivatives of a type previously accepted by CAA are submitted for certification, the need for any design investigation or Flight Manual review will follow the criteria and procedures in 4 and 5 above.

7.2 **Modifications**

7.2.1 Any modification (including STCs) incorporated on an aircraft of a type other than those investigated in accordance with 4.2.1, 4.2.2 or 4.3.2 and which has been approved by a foreign Authority, may be subject to investigation by CAA in accordance with 4.1.

7.2.2 Any modification (including STCs) incorporated on an aircraft of a type investigated in accordance with 4.2.1, which has been approved by an Authority which the CAA accepts as having airworthiness standards broadly equivalent to those of the CAA, will also be accepted without design investigation. Where such a modification is incorporated on an aircraft certificated in the Transport Category and is likely to be affected by the requirements of the UK air navigation legislation, the aircraft may be subject to a CAA inspection and the Flight Manual will be subject to review in accordance with 4.4.3 above.

7.2.3 Any modification (including STCs) incorporated on an aircraft of a type investigated in accordance with either 4.2.2 or 4.3.2 will be considered against the criteria of 4.2.2 or 4.3.2 to determine whether or not an investigation needs to be undertaken.

7.2.4 If a modification, which is subject to a CAA investigation as determined above, could affect the flying qualities, performance, crew procedures or flight deck layout, then flight testing in accordance with the relevant section of 4.5. above may be undertaken.

8 Documents and Manuals

Irrespective of the depth of investigation required by this Chapter, before an aircraft can be accepted for UK certification, all documents associated with the aircraft must be provided in English. This includes, all documents necessary for the design investigation and those for certification, operation and continued airworthiness of the aircraft.

9 The Type Certificate and Type Certificate Data Sheet

9.1 In most cases (see 2 above), with the co-operation of the applicant, the CAA will prepare and issue the Type Certificate together with the associated Data Sheet.

The Type Certificate will contain the following information:

a) The Type Certificate number;

b) The designation of the type;

c) The Manufacturer (Type Certificate Holder);

d) A statement that the type of aircraft concerned is acceptable for United Kingdom airworthiness certification;

e) A reference to the associated Type Certificate Data Sheet.

9.2 The Type Certificate Data Sheet associated with the Type Certificate will give the basis of certification and the designation of each aircraft variant certificated, and also define some general particulars of the design.

9.3 The Type Certificate and Data Sheet will be issued to the applicant.

9.4 Copies of Type Certificates and Data Sheets may be obtained from the CAA.

INTENTIONALLY LEFT BLANK

Chapter B2-3 Flight Testing for Type Certification or Validation

1 General

1.1 The flight testing of Prototype aircraft under investigation for Type Certification or Validation shall comply with the procedures set out in this Chapter B2-3, as follows:

NOTE: Owners are required to arrange adequate insurance to cover damage to the aircraft and to third parties (see CAA Airworthiness Notice No. 66).

1.2 In order that the CAA may accept reports on flight test matters, the qualifications and experience of personnel involved in flight testing under the provisions of this Chapter shall be acceptable to the CAA. Flight test personnel shall be provided with adequate facilities and equipment for the effective performance of their duties.

2 Prototype Aircraft

The requirements and procedures of this paragraph 2 are applicable where application is made for the issue of a United Kingdom Certificate of Airworthiness or a Permit to Fly in respect of an aircraft for which a United Kingdom Type Certificate, Certificate of Airworthiness, Type Approval or Permit to Fly, as appropriate (Chapter B3-7), has not previously been issued.

2.1 Compliance shall be shown with a) and b):

a) Flight tests shall have been completed, under the jurisdiction of the Responsible Authority of the country of origin of the aircraft (hereinafter referred to as the Responsible Authority) to show compliance with the relevant airworthiness requirements and Special Conditions of the country of origin.

b) Except where otherwise agreed, flight tests shall have been completed, either under the jurisdiction of the Responsible Authority or under the supervision of an Organisation approved by the CAA, to show compliance with such United Kingdom Additional Requirements and Special Conditions as may have been prescribed provisionally as conditions of United Kingdom certification.

2.2 Full details of the results of the flight tests prescribed in paragraph 2.1 shall be made available, together with any additional information required by the CAA, in order to complete an assessment of the data and to conduct the work as prescribed in paragraph 2.3.

2.3 An aircraft of the same design standard as that submitted for certification shall be placed at the disposal of the CAA, in order that the CAA may:

a) carry out any flight tests considered necessary to confirm compliance with such United Kingdom Additional Requirements and Special Conditions as may have been prescribed provisionally as conditions of United Kingdom certification, and to establish any further Special Conditions which may need to be prescribed;

b) become familiar with the aircraft type;

c) gain information for use in preparing Airworthiness Check Flight Schedules (see Chapter B3-3).

2.4 Except where otherwise agreed, flight tests shall be completed, either under the jurisdiction of the Responsible Authority or under the supervision of an Organisation

approved by the CAA, to show compliance with such further United Kingdom Special Conditions as are prescribed in accordance with 2.3 a).

2.5 If at the time of United Kingdom Certification, little or no operational experience has been gained on the type, the CAA will decide what, if any, flying representative of operational use will be required before certification.

2.6 In certain circumstances, it may be necessary for some of the flight tests of 2.3 to be carried out in the United Kingdom or elsewhere, in which case the applicant will be notified and it may be a requirement that the tests be conducted by a person or Organisation acceptable to the CAA.

Chapter B2-4 Type Certification or Validation of a Variant

1 Introduction

1.1 A Variant is an aircraft which embodies certain design features, dissimilar to the Prototype aircraft, which are required to be investigated for certification purposes.

1.2 The issue of a Certificate of Airworthiness to a Variant will be subject to compliance with the procedures outlined in this Chapter B2–4.

1.3 In the case of a Variant to be investigated for the issue of a Certificate of Airworthiness in the Special Category, the CAA may accept proposals which would vary the procedures in this Chapter B2–4.

1.4 Before the issue of a Certificate of Airworthiness in the Transport, Aerial Work, or Private Category (see B1–2 for "Categories") type aircraft must qualify for a United Kingdom Type Certificate. The procedures for type certification are given in B2–2 and those for the issue of a C of A in B3–1.

NOTE: A Type Certificate is not normally required for an aircraft to be certificated in the Special Category.

2 Application

2.1 SRG 1710, copies of which may be obtained from the CAA website at www.caa.co.uk/SRG1710, shall be completed at an early stage of the design of the aircraft, and returned to the same address, together with the appropriate deposit, as detailed in the form.

2.2 The charges are prescribed in the CAA Scheme of Charges and also noted on CA Form 3. Subject to the payment of a minimum charge equivalent to that for a Series aircraft, the applicant shall pay a charge equal to the cost of the investigation. During the course of the investigation the CAA will normally render accounts at monthly intervals.

2.3 During the investigation, if it is necessary for a CAA Surveyor to travel outside the United Kingdom, or away from the residential area of an overseas office of the CAA Safety Regulation Group, the CAA will require the applicant to meet the additional costs involved.

INTENTIONALLY LEFT BLANK

Chapter B2-5 Approval of Modifications

1 Introduction

1.1 **Changes.** Changes are defined as any change made to a particular aircraft, including its components, engines, propellers, radio apparatus, accessories, instruments, equipment, and their installations together with the Aircraft Flight Manual or other approved documents. Substitution of one type for another when applied to components, engines, propellers, radio installations, accessories, instruments and equipment, is also considered to be a Change.

The approval of Changes will be subject to compliance with the procedures outlined in this Chapter B2–5, but reference should also be made to the particular modification procedures for engines in Chapter B4–2, propellers in Chapter B4–4, accessories and equipment in Chapter B4–8, and radio apparatus in Chapter B4–10, as well as the classification of Changes in Chapter A8-21.

2 Changes that do not require direct CAA approval

2.1 All changes to UK registered non-EASA aircraft must be approved. The classification of changes as major or minor determines the approval route to be followed and the extent of CAA involvement. For classification of changes reference should be made to Appendix 2 to Chapter A8-21.

2.2 **Supplemental Type Certificate**

The involvement of the CAA for the approval of a Supplemental Type Certificate (STC) shall be dependent upon the applicant being able to demonstrate that the design change has been approved. The CAA will consider an STC to be approved, without further showing if:

- a bilateral agreement is in place with the State of Design for the STC; or
- the State of Design for the aircraft has issued the STC; or
- the change has been approved by the competent authority of an EASA member State

and that:

- there is sufficient technical evidence of the applicability of the design change to the aircraft;
- there is appropriate approval documentation for the design change from the applicable NAA identified above;
- continued airworthiness information where applicable is available and integrated into the appropriate maintenance programme;
- the embodiment is subsequently recorded in the maintenance records for the aircraft.

2.3 **Minor Changes**

These will consider a minor change to be approved by the CAA without further showing if:

- Undertaken by a design organisation approved by the CAA; or.

- The change has been approved by the competent authority of an EASA member State; or
- a bilateral agreement is in place with the State of Design for the change; or
- approved by the State of Design for the aircraft

and that:

- there is sufficient technical evidence of the applicability of the design change to the aircraft;
- there is appropriate approval documentation for the design change from the applicable NAA identified above;
- continued airworthiness information where applicable is available and integrated into the appropriate maintenance programme;
- the embodiment is subsequently recorded in the maintenance records for the aircraft.

3 Changes that require CAA approval

3.1 General

3.1.1 All Changes will be classified as major or minor in accordance with the airworthiness significance of the Change. Where the investigation indicates that the particulars given in the Type Certificate Data Sheet, Flight Manual or other approved documents, will need amendment (even though no physical change to the aircraft is involved), the CAA may require the Major Change procedure to be followed where the amendments are significant.

3.1.2 The CAA requires all changes to be classified as major or minor. The classification can only be made by the CAA or an appropriately approved design organisation.

3.1.3 Whenever there is doubt with respect to the classification, the CAA should be consulted.

3.1.4 All changes shall be approved through the modification procedures of an appropriately approved Organisation, or in some circumstances, by the CAA directly.

NOTE: Approval of changes is carried out by the CAA where the applicant for the change does not hold a suitable approval under Chapter A8-21 that would allow this privilege.

3.1.5 The Applicant, shall ensure that the proposed Change is such that the design of the aircraft, when modified, complies with:

a) the requirements in force at the time the aircraft type was originally certificated;

b) such other requirements as the CAA may notify, in writing, in respect of the aircraft design.

The Applicant shall, when making these statements, further ensure that the Change is compatible with all defined aircraft build standards for which the Change is to be incorporated, or that any incompatibilities are identified.

3.1.6 All relevant design information, drawings and test reports shall be held at the disposal of the CAA. No such design records shall be destroyed without authorisation from the CAA.

3.1.7 Where changes affect unit interchangeability, or are of such an extent as to require amendment of approval documents or any documents associated with the Certificate of Airworthiness (C of A) or Permit to Fly, a separate type or designation reference shall be allocated to the modified unit.

3.1.8 Where changes affect or impinge upon the content of the approved manuals such as the Aircraft Flight Manual, Aircraft Maintenance Manual, Instructions for Continuing Airworthiness or Master Minimum Equipment List (MMEL), Applicants will be required to ensure that notification of these effects is provided to the CAA so that the necessary action can be taken to amend the relevant manuals.

3.2 **Major Changes**

3.2.1 The following procedures will apply in the case of a modification classified as a Major change.

- An application for a non-EASA modification form can be downloaded from the CAA website at: www.caa.co.uk/forms;
- The CAA may require a Certificate of Design, which shall be signed by a design signatory from an approved organisation. The Certificate shall be worded as follows, please see example over the page.

CERTIFICATE OF DESIGN (CHANGE)

Aircraft Designation .....

Registration Marks .....

Manufacturer's Serial Number of Aircraft .....

Certificate of Airworthiness Categories .....

.....

.....

Performance Group .....

Engine(s) type .....

I hereby certify that the Change(s) listed below, define all of the changes associated with this certificate.

Change(s) .....

.....

.....

.....

I further certify, that, with the exceptions listed below, the design of the above Change complies with the requirements specified by the CAA as the certification basis for this type of aircraft and with any additional requirements notified by the CAA in respect of the particular change.

Exceptions .....

.....

.....

.....

Signed .....

Organisation .....

CAA Approval Ref No. .....

Date .....

3.2.2 The CAA may require an addendum to the Type Record to be prepared by an approved Organisation. The addendum shall contain particulars of design changes made and all consequent changes to the information given under each heading of the relevant Type Record.

3.2.3 The CAA will signify approval of a Major change by forwarding to the Applicant a copy of the Supplementary Type Certificate or Airworthiness Approval Note as appropriate.

3.2.4 The approved organisation is responsible for the continuing airworthiness of the change and shall undertake the functions of Chapter B5–1 sub-paragraphs 1.1 c), d), e) and f) with respect to the change.

3.2.5 **Civil Change Record.** When the design of a change is undertaken by an approved Organisation, a record shall be kept of the following particulars:

a) Aircraft type;

b) Title and brief description of change;

c) Change reference number;

d) Change classification;

e) Supplementary Type Certificate or Airworthiness Approval Note number (in the case of a Major change);

f) Reference to the associated Flight Manual amendment number;

g) Reference to the associated Maintenance, Overhaul and Repair Manuals, Crew Manual and Maintenance Schedule amendment numbers;

h) Reference to the associated MMEL revision (if appropriate).

3.2.6 The Civil Change Record shall be made available to the CAA for examination.

4 Changes Already Approved

4.1 The Supplementary Type Certificate or Airworthiness Approval Note will be placed on the CAA website and will be publicly available. The supporting proprietary information such as design data, including drawings and test re-ports are held by the CAA as confidential documents.

5 CAA Airworthiness Directives (ADs) and Mandatory Permit Directives (MPDs)

5.1 Changes considered essential for airworthiness (Mandatory Changes), will be promulgated as CAA ADs or MPDs. Where appropriate, consultation with the applicable approved organisation and the aircraft operators with regard to compliance dates, limiting flying hours, cycles, or details relating to the action prescribed, will be undertaken. In making these decisions the degree of urgency and availability of modified parts will be taken into account (See B5-6).

NOTE: Changes classified as essential for airworthiness and promulgated by the CAA as ADs or MPDs will be contained in the CAA publications: CAP 747 'Mandatory Requirements for Airworthiness' or CAP 661 'Mandatory Permit Directives' and published on the CAA website at www.caa.co.uk.

INTENTIONALLY LEFT BLANK

Sub-Section B3
Certificates of Airworthiness and other Provisions for Legal Flight

Chapter B3-1 Certificates of Airworthiness

1 Introduction

1.1 The issue of a Certificate of Airworthiness (C of A) is dependent on the aircraft being registered in the United Kingdom and will be subject to compliance with the procedures outlined in BCAR Section A (CAP 553) , Sub-Section 3, Chapter A3-1.

INTENTIONALLY LEFT BLANK

Chapter B3-3 Test and Check Flights for Issue of a National Certificate of Airworthiness or a National Permit to Fly

1 General

1.1 When application is made for the initial issue of a United Kingdom National Certificate of Airworthiness (Chapter B3-1) or a National Permit to Fly (Chapter B3-7), the requirements and procedures of BCAR Section A (CAP 553), Sub-section 3, Chapter A3-3 apply.

INTENTIONALLY LEFT BLANK

Chapter B3-6 Certificates of Airworthiness for Export

1 Introduction

1.1 The issue of a Certificate of Airworthiness for Export (hereinafter referred to as the 'C of A for Export') shall be subject to compliance with the procedure set out in BCAR Section A (CAP 553), Sub-Section A3, Chapter A3–6.

INTENTIONALLY LEFT BLANK

Chapter B3-7 Issue and Renewal of Permits to Fly

1 Introduction

1.1 The CAA has primary responsibility for any aircraft issued with a UK permit to fly. Consequently, the requirements concerning the issue and renewal of permits to fly are given in BCAR Section A (CAP 553), Sub-Section A3, Chapter A3-7.

INTENTIONALLY LEFT BLANK

Chapter B3-8 'A' Conditions

1 Introduction

1.1 Flight under 'A' Conditions as prescribed in Schedule 3 of the Air Navigation Order may only be undertaken in accordance with BCAR Section A (CAP 553), Sub-Section A3, Chapter A3-8.

INTENTIONALLY LEFT BLANK

Chapter B3-9 'B' Conditions

1 Introduction

1.1 Flight under 'B' Conditions as prescribed in Schedule 3 of the Air Navigation Order, may only be undertaken by Organisations Approved in accordance with BCAR Section A (CAP 553), Sub-Section 8, Chapter A8–9.

INTENTIONALLY LEFT BLANK

Chapter B3-11 Aircraft Radio Installations

1 Introduction

1.1 Aircraft radio installations are undertaken in accordance with BCAR Section A (CAP 553), Sub-Section A3, Chapter A3-11.

INTENTIONALLY LEFT BLANK

Sub-Section B4
Design and Manufacture of Products other than Aircraft

Chapter B4-2 Type Validation of Engines and Associated Equipment

1 General

The requirements of this paragraph 1 are, except where otherwise indicated, applicable to all engines and associated equipment first type certificated by a foreign Authority. Approval of engines and associated equipment designed and constructed outside the United Kingdom is by means of validation of the certification issued by the Responsible Authority of the State of Construction.

1.1 **Introduction.** Engines and associated equipment for use in civil aircraft for which a Certificate of Airworthiness is required must be of approved types. The approval of such engines and equipment will be subject to compliance with the procedures set out in this Chapter B4–2.

NOTE: In respect of engines and associated equipment for use in civil aircraft, for which a Certificate of Airworthiness is required in the Special Category, the CAA may accept proposals which would vary the procedures in this Chapter B4–2.

1.1.1 The procedures of this Chapter also apply, in principle, to the approval of Auxiliary Power Units, except that, where appropriate, references to CS–E should be read as being to CS-APU.

1.2 **Definition of Engine.** An engine used, or intended to be used, for aircraft propulsion. It consists of, at least, those components and equipment necessary for satisfactory functioning and control, but excludes the propeller and its associated equipment.

1.3 **Application.** The application for CAA approval of an engine shall be made in accordance with paragraph 2.

1.4 **Engine Type Identity.** All engines of the same basic type shall have a common designation, and variants thereof shall be identified in a manner acceptable to the CAA, and all such details shall be listed on the Engine Type Certificate, or equivalent approval documents. The designation shall differ from that of any similar engine designed and built to requirements other than CS–E.

1.4.1 If the ratings of the engine are changed significantly after the engine has been approved, or a significant alteration to the physical standard is made, the identification shall be changed and the approval documents shall be amended accordingly.

1.5 **Modular Engines.** Details shall be provided in the relevant engine manuals of the division of the engine into modules (see CS–I for definition) giving the nomenclature and clearly defining the boundaries for each module.

2 Application for Approval

2.1 Application for the approval of an engine shall be made in writing to the CAA Safety Regulation Group.

2.2 The application shall be made through, or with the knowledge of, the Responsible Authority of the State of construction.

2.3 The applicant is responsible for the provision of the information specified in paragraph 3 and such other information as may be required by the CAA.

2.4 The application shall include an undertaking to meet the costs incurred by the CAA during its investigations resulting in validation, the rejection of the application, or until the application is withdrawn.

2.5 The application shall also include an undertaking that the costs incurred by the CAA for work in maintaining the validity of the Type Certificate will be met by the applicant.

3 Type Approval of Engines Designed and Manufactured outside the United Kingdom

3.1 In addition to compliance with paragraph 1, engines designed and manufactured outside the United Kingdom shall comply with this paragraph 3.

NOTE: No separate validation is necessary in respect of piston engines of conventional design not exceeding 260 kW (350 BHP) installed in an aeroplane or helicopter, the Maximum Total Weight Authorised of which does not exceed 2730 kg, for which an application for aircraft certification of no higher status than that granted by the Responsible Authority has been made to the CAA.

3.2 In seeking validation of approval, the applicant shall follow any procedures laid down in bilateral or multilateral agreements involving the CAA and the Responsible Authority.

3.3 In the absence of an agreement in accordance with sub-paragraphs 3.2, a) to d) shall apply.

a) A comparison will be made between the requirements to which the engine has been approved and the equivalent CAA requirements;

b) Any differences resulting from the comparison will be evaluated by the CAA, and 'Additional Requirements' may be prescribed by the CAA in writing;

c) Sufficient information shall be supplied to the CAA so that any novel or unusual design features which are not covered by the current CAA requirements may be identified. If, as a result of this consideration, it is necessary to prescribe further requirements, these will be notified in writing as 'Special Conditions';

d) The Responsible Authority shall accept responsibility for establishing that compliance is shown with any Additional Requirements and Special Conditions and for notifying the CAA accordingly.

3.4 In addition to compliance with paragraph 3.2 or 3.3, as appropriate, the applicant shall comply with paragraphs 3.4.1 to 3.4.3.

3.4.1 All documents required by the CAA for validation of approval of engines, and for their continued airworthiness, shall be provided in the English language, unless otherwise agreed by the CAA.

3.4.2 For the purpose of the investigation, and unless otherwise agreed in writing, the following information shall be provided:

a) A brief description of the engine and one copy of cross-section assembly drawings;

i) One copy of the Type Approval documents detailing all the relevant ratings, operating limitations, etc;

ii) Where specifically requested, a copy of the requirements to which the engine was approved;

iii) Details of any deviation from, or failure to comply with, any other requirements, and of any Special Conditions which have been imposed by the Responsible Authority;

iv) Where the certification documents do not provide a clear statement of the minimum acceptance power and/or thrust of a new, or newly overhauled engine, a statement of this information, together with the conditions under which the power and/or thrust should be achieved.

b) One copy of a report summarising the development history and service experience, including a statement of any novel or unusual design features;

c) One copy of the Type Certification Compliance Table or equivalent documents which includes details of any Special Conditions/Additional Requirements imposed by the Responsible Authority.

3.4.3 The following shall also be provided for retention by the CAA:

a) Two copies of each manual referred to in paragraph 6.1;

b) For engines intended for use in aircraft designed in the United Kingdom, one copy of the Approved installation drawings and data together with such information regarding engine performance as may be necessary to enable the aircraft performance to be assessed for the purpose of the Flight Manual;

c) Two copies of all relevant Service Bulletins, Modification Bulletins, etc., issued by the manufacturer, and Mandatory Instructions issued, or applied, by the Responsible Authority;

d) Written confirmation that arrangements are in force to ensure that subsequent issues and/or amendments to the documents referred to in a), b) and c) will continue to be supplied until the arrangements are terminated in writing by the CAA;

e) Two specimen copies of the release documents, in which the Category of Release will be specified, which will be issued by the manufacturer, or the Responsible Authority, both for complete units and for spare parts;

i) A statement of the recommended initial overhaul period (or details of the equivalent maintenance programme) together with details of any associated inspections, checks, etc;

ii) A list of all component retirement or ultimate (scrap) life limitations agreed by the Responsible Authority.

3.5 The manufacturer and the Responsible Authority will be informed where it is considered necessary for the manufacturer's Organisation to be approved by the CAA. Where such approval is not necessary all data provided in accordance with paragraph 3.4 shall contain an indication that it is acceptable to the Responsible Authority.

3.6 When satisfied that compliance has been shown with all requirements the CAA will validate the approval given by the Responsible Authority and notify the applicant and Responsible Authority in writing. The validation documents will state any additional limitations which will apply when the engine is installed in an aircraft registered in the United Kingdom.

4 Design and Manufacture

4.1 Engines and equipment shall have been designed, constructed and tested under airworthiness procedures acceptable to the CAA.

4.2 **Modifications.** Modifications shall be approved in accordance with paragraph 4.2.2 or 4.2.3 or 4.2.4 to ensure that the proposed modification is such that the engine or equipment when modified complies with a) and b).

a) The relevant design and test requirements in force at the time the engine or equipment was originally approved;

b) Such other design and test requirements as the CAA may have notified in writing to the applicant, as being applicable to the engine, or items of equipment concerned.

4.2.1 Salvage/Repair schemes shall be classified as modifications, and shall normally be approved through the medium of the original Approval Organisation, or through an Organisation specifically approved for the purpose by the CAA.

4.2.2 Manufacturer's modifications shall be approved in accordance with the Certificating Authority's procedures. Additional investigation will not normally be undertaken by CAA, unless notified that the modification does not satisfy paragraph 4.2 a) or b).

4.2.3 Modifications by other than the manufacturers, but under the control of the Certificating Authority will be acceptable in accordance with paragraph 4.2.2.

4.2.4 Modifications not subject to paragraphs 4.2.2 and 4.2.3 will require CAA approval in accordance with the requirements of BCAR Section A Chapter A4–2 paragraph 4.6.

5 Engine Equipment Designed and Manufactured outside the United Kingdom

Engine equipment designed and manufactured outside the United Kingdom, which is intended for use on engines designed and constructed within the United Kingdom, shall be approved or accepted in accordance with paragraph 5.1 or 5.2 as appropriate.

5.1 **Group 1 Equipment.** For approval as an integral part of the engine, all Group 1 equipment shall comply with the design and test requirements of CS–E and with a) or b), as appropriate.

a) Items of Group 1 equipment for which the engine manufacturer takes full responsibility (Group 1 a)), shall have been designed and manufactured in accordance with the airworthiness design and test requirements of the relevant specification.

b) Items of Group 1 equipment for which the engine manufacturer does not accept the responsibility for full technical control (Group 1 b)), shall have been approved initially in accordance with a procedure similar to the Accessory Procedure of Chapter B4-8, and shall be accepted by the engine manufacturer on the basis of the related Declaration of Design and Performance or equivalent document.

5.2 **Group 2 Equipment.** Group 2 equipment will be accepted for use on an engine subject to:

a) the design meeting the interface requirements specified by the engine manufacturer, or otherwise acceptable to the CAA. Conformity with the interface requirements shall be certified by an Organisation appropriately approved by the CAA;

b) evidence of satisfactory operation of the engine fitted with the equipment during tests acceptable to the CAA.

NOTE: The procedure for the approval of Group 2 equipment in its own right will be in accordance with B4–8.

6 Manuals

6.1 Approved manuals shall be provided containing instructions for installing, operating, maintaining and overhauling the engine and its associated equipment (see B6–2 and B6–7).

6.2 Engine performance data, compatible with the engine acceptance and operating limitations, shall be provided for aircraft certification performance, handling and stressing purposes. The data should be such that the power/thrust of a 'minimum' and a 'maximum' engine can be derived and shall include means of determining the effects on performance of variations of engine bleed and power off-take, forward speed, ambient pressure, temperature, humidity.

7 Variation or Cancellation

7.1 At suitable times the CAA will review with the respective design Organisation and Responsible Authority the engines and associated equipment which have been approved, to determine whether the approvals are still required or justified, or whether a variation is necessary. On the basis of their review the CAA will make such changes or cancellations as may be appropriate to the circumstances.

INTENTIONALLY LEFT BLANK

Chapter B4-4 Type Certification or Validation of Propellers

1 General

The requirements of this paragraph 1 are, except where otherwise indicated, applicable to all propellers and associated equipment.

1.1 **Introduction.** Propellers and associated equipment for use in civil aircraft for which a Certificate of Airworthiness is required, must be of approved types. The approval of such propellers and equipment will be subject to compliance with the procedures set out in this Chapter B4–4.

NOTE: In respect of propellers and associated equipment for use in civil aircraft for which a Certificate of Airworthiness is required in the Special Category, particularly amateur-built and ultra-light aircraft, the CAA may accept proposals which would vary the procedures in this Chapter B4-4.

1.2 **Application.** Application for CAA approval of a propeller shall be made in writing to the CAA, and shall be accompanied by a declaration giving details of the propeller design together with details of the engine or engine/aircraft combination for which approval is sought. The applicant shall include an undertaking to meet the costs incurred by the CAA during its investigation resulting in propeller approval, the rejection of the application after investigation, or until the application is withdrawn, and also subsequent work in maintaining the validity of the approval through modifications to the propeller type and/or amendments to the Type Approval.

NOTE: Propellers are finally approved in association with a defined engine/aircraft application. However, if requested by the applicant the CAA will be prepared to indicate Preliminary Approval when compliance has been established with those requirements which can be met prior to the propeller being selected for, and fitted to, a particular aircraft, i.e. those requirements applicable to a propeller/engine combination only.

1.3 **Propeller Type Identity.** All propellers of the same basic type shall have a common designation, and variants thereof shall be identified in a manner acceptable to the CAA.

1.3.1 If the rating(s) of the engine and/or the flight envelope of the aircraft to which the propeller approval relates are changed significantly after the propeller has received Preliminary or Final approval, or a significant alteration to the physical standard of any feature of the installation is made, the approval will be reviewed, and if necessary, the identification shall be changed.

2 Compliance

2.1 A propeller of a type not previously approved by the CAA, but which has been approved by the Responsible Authority of the State of Design (hereinafter referred to as the 'Responsible Authority') may have such approval validated subject to compliance with the procedures of this paragraph.

NOTE: No separate validation is necessary in respect of propellers of conventional design, fitted to piston engines not exceeding 260 kW (350 BHP), installed in an aeroplane the Maximum Total Weight Authorised of which does not exceed 2730 kg, for which an application for aircraft certification of no higher status than that granted by the Responsible Authority has been made to the CAA.

2.1.1 The application for CAA validation of approval of a propeller shall be in accordance with 1.2.

2.1.2 Propellers shall have been designed, constructed and tested under airworthiness procedures acceptable to the CAA.

2.2 In seeking validation of approval, the applicant shall follow any procedures laid down in bilateral or multilateral agreements involving the CAA and the Responsible Authority.

2.3 In the absence of an agreement in accordance with 2.2, a) to c) shall apply:

a) On the basis of a comparison made between the requirements to which the propeller has been approved and relevant CAA requirements, 'Additional Requirements' may be prescribed by the CAA in writing;

b) Sufficient information shall be supplied to the CAA so that any novel or unusual design features which are not covered by the current CAA requirements may be identified. If, as a result of this consideration, it is necessary to prescribe further requirements, these will be notified in writing as 'Special Conditions';

c) The Responsible Authority will accept responsibility for establishing that compliance is shown with any Additional Requirements and Special Conditions and for notifying the CAA accordingly.

2.4 Once the requirements of 2.2 or 2.3, as appropriate, have been met, the applicant shall comply with 2.4.1 to 2.4.3.

2.4.1 All documents required by the CAA for validation of approval of propellers, and for their continued airworthiness, shall be provided in the English language, unless otherwise agreed by the CAA.

2.4.2 For the purpose of the investigation, and unless otherwise agreed in writing, the following information shall be provided:

a) A brief description of the propeller and one copy of cross-section assembly drawings;

b)

i) One copy of the design specification detailing all the relevant limitations, etc;

ii) Where specifically requested, a copy of the requirements to which the propeller was approved;

iii) Details of any deviation from, or failure to comply with, any of the requirements, and of any Special Conditions which have been imposed by the Responsible Authority;

c) One copy of a report summarising the development history and service experience, including a statement of any novel or unusual design features;

d) One copy of the Type Certificate Compliance Table or equivalent document which includes details of any Special Conditions imposed by the Responsible Authority.

2.4.3 The following shall also be provided for retention by the CAA:

a) Two copies of each manual referred to in 3;

b) For propellers intended for use in aircraft designed in the United Kingdom, one copy of the approved installation drawings and data;

c) Two copies of all relevant Service Bulletins, Modification Bulletins, etc., issued by the manufacturer, and Mandatory Instructions issued, or applied, by the Responsible Authority;

d) Written confirmation that arrangements are in force to ensure that subsequent issues and/or amendments to the documents referred to in a), b) and c) will continue to be supplied until the arrangements are terminated in writing by the CAA;

e) Two specimen copies of the release documents, in which the Category of Release will be specified, which will be issued by the manufacturer, or the Responsible Authority, both for complete units and for spare parts;

f)

i) A statement of the recommended initial overhaul period (or details of the equivalent maintenance programme) together with details of any associated inspections, checks, etc;

ii) A list of all component retirement or ultimate (scrap) life limitations agreed by the Responsible Authority.

2.5 The manufacturer and the Responsible Authority will be informed where it is considered necessary for the manufacturer's Organisation to be approved by the CAA. Where such approval is not necessary all data provided in accordance with paragraph 2.4 shall be acceptable to the Responsible Authority, and shall contain an indication that it is so.

2.6 When satisfied that compliance has been shown with all requirements the CAA will validate the approval given by the Responsible Authority, and will state any additional limitations which will apply when the propeller is installed in an aircraft registered in the United Kingdom.

3 Manuals

Approved Manuals shall be provided containing instructions for installing, operating, maintaining and overhauling the propeller and its associated equipment (see Chapter B7–4).

4 Associated Propeller Equipment Designed and Manufactured outside the United Kingdom

Propeller equipment designed and manufactured outside the United Kingdom, which is intended for use on propellers designed and manufactured within the United Kingdom, shall be approved in accordance with paragraph 2.2, taking into account any existing approval of the equipment by the Responsible Authority and any agreement which exists between the Responsible Authority and the CAA.

INTENTIONALLY LEFT BLANK

Chapter B4-8 Design and Approval of Aircraft Equipment and Accessories

1 General

1.1 **Introduction.** This Chapter B4–8 sets out procedures whereby aircraft equipment and accessories may be registered and certified as suitable for installation in aircraft for which a UK Certificate of Airworthiness is desired.

1.2 **Applicability.** The requirements and procedures set out in this Chapter are applicable to:

a) all aircraft equipment and accessories intended for installation in aircraft, excluding:

i) Engines, auxiliary power units, propellers and radio apparatus (see Chapters B4–2, B4–4 and B4–10 respectively).

ii) Items wholly designed by an aircraft manufacturer, where such items are intended to be installed only in that aircraft manufacturer's own specific aircraft design, in which case they will be covered by the aircraft type record. (See Chapter B3-1.)

NOTE: Such items could include standard parts or components (e.g. electronic components).

b) the approval or registration, as appropriate, of items, which are required to be approved;

c) the acceptance and certification of items, which are not required to be approved;

d) the installation of items into aircraft registered in the United Kingdom.

1.3 **Applications.** Applications in respect of the procedures of this Chapter B4–8 will be accepted only from Organisations not approved by the CAA but responsible to the Responsible Authority of the country of origin.

2 Definitions

For the purposes of this Chapter B4–8 the following definitions shall apply.

NOTE: To provide for the differences in regulatory procedures and terminology which exist between the United Kingdom and certain foreign countries, and in order to be consistent with the terminology of bilateral agreements, the following terms should be taken as having identical meanings:

a) 'Item', 'Equipment', 'Appliance';

b) 'Certification', 'Appliance Registration'.

2.1 **Items.** Airframe parts and equipment intended to be installed in aircraft (excluding engines, propellers and radio apparatus).

2.1.1 **Component.** An item for which the procedure followed is that prescribed in paragraph 5.3.

2.1.2 **Accessory.** An item for which the procedure followed is that prescribed in paragraph 5.4.

2.2 **Uncontrolled Items.** Those airframe parts and equipment, the installation or failure of which would not adversely affect the airworthiness and the safe operation of an aircraft and as such are not required to be approved together with those items specifically exempted from approval by the Air Navigation Order (ANO).

2.3 **Controlled Items.** Those airframe parts and equipment:

a) prescribed in the Air Navigation Order and not specifically exempted from approval;

b) prescribed in the Requirements;

c) on which the airworthiness and safe operation of an aircraft depend;

d) the installation or failure of which could adversely affect the airworthiness and safe operation of an aircraft.

2.4 Responsible Authority. The body in any country which exercises control in a similar manner to the CAA in respect of regulatory procedures and airworthiness control of the item under consideration.

3 Standard Parts

3.1 The procedure prescribed in this Chapter B4–8 need not be followed for AGS and other standard parts complying with national or international specifications or standards recognised by the CAA or the appropriate Responsible Authority.

NOTE: This is intended to cover minor items complying with AGS, SBAC, BSI or similar standards, where these are limited to manufacturing drawings from which the Organisation can assess the Items as suitable for the intended application.

3.2 The Organisation using such standard parts shall accept responsibility for the manner of their use.

4 Uncontrolled Items

Uncontrolled Items, regardless of the country of manufacture, are not required to be approved, but when installed in an aircraft registered in the United Kingdom, compliance shall be shown with the requirements of this paragraph 4.

NOTE: An Organisation responsible for the installation of Uncontrolled Items in aircraft may require these Items to be manufactured under the supervision of an appropriately approved Organisation.

4.1 General

4.1.1 An Organisation, responsible to the Responsible Authority in the country of origin, shall submit to the CAA for acceptance, a certificate that it has satisfied itself that no Uncontrolled Items installed in the aircraft will, in themselves, constitute a danger to the aircraft, together with a list of the Items (except for those which obviously could have no safety significance). When so requested, the Organisation shall supply to the CAA a summary of evidence on which the certification was based.

4.1.2 An Organisation approved for design incorporating Uncontrolled Items in an aircraft, shall submit to the CAA for acceptance a certificate that it has satisfied itself that the installation of such Items does not adversely affect the airworthiness and safe operation of the aircraft concerned, and that they are so installed that in the event of their failure or malfunction, the Items will not endanger the aircraft or its occupants.

NOTE: For new aircraft types the certifications in paragraphs 4.1.1 and 4.1.2 are covered by the usual Certificate of Design for the aircraft type. Where items are introduced as modifications, the CAA may require a further Certificate of Design. (See Chapter B6–6.)

5 Controlled Items - Designed and Manufactured under the Supervision of Organisations in Foreign Countries not Approved by the CAA but Responsible to the Responsible Authority

The procedures of this paragraph 5 are applicable only to Items which have been designed, tested, manufactured, documented and certificated in accordance with the relevant airworthiness requirements, applicable specifications and procedures of the country of origin, under the supervision of Organisations not approved by the CAA but responsible to the Responsible Authority.

5.1 **Continuity of Quality.** Assurance of continuity of quality may be provided by evidence that procedures acceptable to the Responsible Authority were used. Where continuity of quality is not so assured, such inspections and tests as are considered necessary shall be made under the supervision of an Organisation approved by the CAA, to the satisfaction of the CAA.

5.2 **Procedure to be Adopted.** Where foreign equipment is intended for use in United Kingdom constructed or registered aircraft, the procedure to be followed for acceptance or registration shall be the Component Procedure prescribed in 5.3 or the Appliance Registration Procedure prescribed in 5.4, as determined by 5.2.1 to 5.2.4.

5.2.1 Where the Item is designed for a particular use in a particular aircraft type, the Component Procedure shall normally apply. Where it is proposed that the Appliance Registration Procedure should be used for such an Item, the prior agreement of the CAA shall be sought.

5.2.2 Where the Item is classified as Mandatory Equipment as defined in the Air Navigation Order or in the appropriate Section of the Requirements, e.g. Section G for rotorcraft, the Appliance Registration Procedure shall apply, unless agreed otherwise by the CAA.

5.2.3 Where the Item is designed for general use other than as described in 5.2.1 or 5.2.2, either the Appliance Registration Procedure or the Component Procedure shall be applied at the discretion of the Applicant, subject to the agreement of the CAA.

5.2.4 Where the Responsible Authority is unable or unwilling to operate the Appliance Registration Procedure, the Component Procedure shall apply.

5.3 **Component Procedure**

5.3.1 Where the Component Procedure is applied, the CAA will not normally be involved in the investigation of the component. The CAA does, however, reserve the right to carry out such investigations as it considers necessary in a particular case. In the event of the CAA becoming involved, the Organisation making use of the component will be advised. Any costs incurred by the CAA in the investigation will be charged to that Organisation, unless other specific arrangements have been agreed between the Organisation(s) concerned and the CAA.

5.3.2 The Organisation approved by the CAA which is accepting responsibility for the installation of components produced in accordance with this paragraph 5 into products or aircraft of its own design, shall follow procedures equivalent to those specified in A4–8. In addition, this approved Organisation shall establish to its own satisfaction and to the satisfaction of the CAA, the adequacy of the control of the continued design, manufacture, modification and quality assurance procedures applicable to the component.

5.4 Appliance Registration Procedures[1]

5.4.1 **Application.** Where the Appliance Registration Procedure is applied, the Applicant shall complete CAA Form AD 70, and shall forward it to the CAA Safety Regulation Group together with the correct fee, in accordance with the CAA Scheme of Charges. The CAA will charge to the Applicant all cost involved in the investigation of the Appliance, including fees, subsistence and travelling where appropriate. The total charge will be based on the cost of the investigation (regardless of the outcome) and the CAA will, during the course, or upon completion of the investigation, notify any further charges in writing. The Applicant shall, normally, deal direct with the CAA throughout the Registration process.

5.4.2 **General.** The Appliance shall conform to a Specification (frequently the maker's own specification or a specification issued by the Responsible Authority) acceptable to the CAA, and shall be certificated by a DDP (see 6) by an Organisation accepted by the Responsible Authority for the design of such Appliances. The CAA will accept that an Appliance has those characteristics set out in the DDP and vouched for by the Responsible Authority. The CAA shall have the right to disclose the contents of a DDP relating to the Appliance to persons interested in the installation of such an Appliance. The manufacturer of the Appliance is normally expected to make the DDP available to such persons.

5.4.3 **Procedure.** The procedure to be followed for CAA Appliance Registration shall be as set out in this paragraph 5.4.3.

a) **Documentation.** The Applicant shall provide the following:

i) CAA Form AD 70, the correct fee and a letter requesting Registration, addressed to CAA, Safety Regulation Group, with a copy to the Responsible Authority;

ii) Written confirmation from the Responsible Authority that it is willing to support the application for Appliance Registration;

iii) A copy of the Specification(s) with which the Appliance complies;

iv) Drawings and such descriptive information as will adequately define the Appliance to the CAA.

NOTE: It may be necessary for the CAA to require a physical examination of the item.

v) A Declaration of Design and Performance (DDP) (see 6);

vi) Type test or other evidence showing conformance with the Specification(s) with which the Appliance complies;

vii) One copy of the Maintenance, Overhaul and Repair Manuals and a copy of Service Bulletins and the Installation Manual, where appropriate;

viii) A Statement of Conformance signed by the Applicant certifying that:

- The Appliance conforms to the Specification(s) and also complies with the appropriate requirements of the Responsible Authority. A statement of any agreed exceptions or deviations shall be made.
- The Appliance will be manufactured under the quality control procedures declared to, and accepted by the Responsible Authority.
- The CAA will continue to be advised of any modifications affecting the airworthiness of the Appliance.
- A revision service for publications prescribed in vii) will be provided.

1 The procedure will be based on agreement between the CAA and the Responsible Authority.

ix) Where the Appliance has been approved by the Responsible Authority, a copy of the original letter of approval.

b) **United Kingdom CAA Additional Requirements**

i) After examination of the documentation required by a), the CAA may prescribe Additional Requirements.

ii) Additional Requirements will be limited to the minimum found necessary:

- to provide a level of safety equivalent to that provided for by United Kingdom Requirements, Specifications and practices, and to enable compliance to be shown with the United Kingdom Air Navigation Order.
- to cover unusual features not covered by existing United Kingdom Requirements, Specifications and practices.

iii) In order to determine Additional Requirements the CAA may require the Applicant to provide such failure analyses as are considered necessary.

iv) Where Additional Requirements are prescribed, the Applicant and the Responsible Authority will be so advised and sent copies of all related correspondence. The Applicant shall then submit an amended Statement of Conformance, any additional evidence and a certificate that the Additional Requirements have been met. The Statement shall be accompanied by a letter from the Responsible Authority certifying that the design requirements for the particular Appliance, including the prescribed Additional Requirements, have been met.

c) **Registration**

i) Upon CAA acceptance of the documentation required by (a), and also, where applicable, receipt of satisfactory additional statements and evidence as required by (b)(iv), the Appliance will be registered by the CAA as suitable for use within the limitations of the DDP and this Registration will be signified by issue of a CAA Appliance Registration reference 'AR' number. The Registration will apply only to the Applicant, at his address at the time of Registration.

ii) The CAA will provide the Responsible Authority with a copy of the formal letter of Registration of the Appliance.

d) **Acceptance of Individual Appliances**

i) Individual Appliances of a type registered in accordance with the procedure of this paragraph 5.4 shall be released to the United Kingdom user under cover of an Airworthiness Approval Certificate issued by the Responsible Authority or by the Applicant, if authority has been delegated to him by the Responsible Authority and that Authority assumes full responsibility for the Certification. The Registration Number (AR) issued by the CAA shall be quoted on the Airworthiness Approval Certificate.

ii) An Organisation with appropriate terms of approval for design may then incorporate the Appliance into products or aircraft of its own design, provided that the DDP shows the Appliance to be suitable.

6 Declaration of Design and Performance

6.1 A standard form of DDP for international use is given in ISO Recommendation No. R224 and a British version is given in BS 3G100:[2] Part 1, entitled 'Declaration Identifications and Construction'. This will require to be adapted according to the nature of the Item. The Declaration shall contain at least the following information:

a) Particulars identifying the Item, its design standard, including reference to the specification(s) to which it is designed, and a record of drawings;

b) The rated performance of the Item, either directly or by reference to other supplementary documents where necessary;

c) The degree of compliance with the Requirements stating the issue number of the Section concerned;

d) Reference to relevant test reports;

e) Any limiting conditions applying to the use of the Item. This shall include limitations implicit in the design (e.g. working and ultimate pressure or loads, rating, working and maximum voltage and current, accuracy of instruments) declarations required by the governing specifications (e.g. by British Standard 3G100)[1] and the ability of the Item to work under various environmental conditions (e.g. acceleration, vibration, altitude, temperature and humidity).

NOTE: For example, an item of electrical Equipment may require the following information:

i) Voltage range;

ii) Frequency range;

iii) Time rating and duty cycle;

iv) Altitude and temperature range appropriate to rating;

v) Climatic test classification and waterproofness grade, as defined in BS 3G100[1];

vi) Vibration grading, acceleration class and grade, explosion-proofness category, fire resistance classification, compass safe distance and radio interference characteristics, all as defined in BS 3G100[1];

vii) Minimum life or overhaul period in hours or cycles of operations;

viii) Fluid resistance;

ix) Any departures from the governing specifications.

6.2 The Declaration shall bear the following statement made and signed by an authorised signatory:

I hereby certify that the information contained in this Declaration of Design and Performance is accurate and is made under the authority of the Civil Aviation Authority, Approval Ref: ..... (Company Name) cannot accept responsibility for the satisfactory operation of Items used outside the conditions given above without their agreement.

7 Manuals

7.1 In respect of Items to which the Accessory or Appliance Registration Procedure has been applied, the Applicant shall prepare the appropriate Maintenance, Overhaul and Repair Manuals.

2 EUROCAE ED14A and RTCA DO 160 are other environmental test Standards which are specifically recognised.

7.2 In respect of Items to which the Component Procedure has been applied, the appropriate Organisation responsible to the Responsible Authority shall prepare the Maintenance, Overhaul and Repair Manuals, or such parts thereof as are appropriate.

8 Modifications

8.1 Modifications to Items to which the procedures of this Chapter B4–8 have been applied may affect the original approval, registration or certification. The Applicant shall notify the CAA or the user, as appropriate, of the intention to change or modify the design, or where a new 'Mark' is to be introduced. Where required by the CAA, CAA Form AD 70 shall be completed and forwarded to the CAA.

NOTE: The procedures for approval of modifications to aircraft are prescribed in Chapter B2–5.

8.2 Where modifications of Items to which the procedures of this Chapter B4–8 have been applied affect physical or functional interchangeability, a separate type (or part) number shall be allocated to the modified Item. Less significant changes shall be identified in an acceptable manner.

8.3 Where the modification invalidates any of the information included in the Type Record for the Item or the Declaration of Design and Performance, the document(s) shall be re-issued with account taken of the modification.

8.4 The Applicant shall keep a master record of all modifications and this shall be made available to the CAA on request.

9 Mandatory Modifications and Inspections

Modifications and inspections considered essential for airworthiness will be classified as mandatory by the CAA in consultation with the Approved Organisations concerned and the aircraft manufacturer, as appropriate, in accordance with the procedures of Chapter B5-6.

10 Equipment Register

10.1 The Applicant shall maintain a register of Items designed for use on aircraft. The register shall be in a form acceptable to the CAA, and shall be made available to the CAA on request.

10.2 Arrangements shall be made to keep the register up to date in respect of new or modified Items. An overall review of Items listed in the register shall be made at periods not exceeding three years, with a view to recommending to the CAA cancellations of approval, registration or restriction of use of obsolete or obsolescent Items.

NOTE: The terms of approval in accordance with Sub-Section A8 are such that essential records may not be destroyed without authorisation from the CAA.

INTENTIONALLY LEFT BLANK

Chapter B4-10 Radio Apparatus

1 Introduction

The requirements and procedures prescribed in this Chapter B4–10 are applicable to radio (and radar) apparatus, i.e. apparatus concerned with information transfer by the use of radiated electro-magnetic waves.

2 Definition

Radio Apparatus is defined as a discrete radio appliance which can readily be connected into, and removed from, an aircraft radio system.

NOTE: The term radio apparatus is intended to include such associated devices as aerials, transducers, service selection systems, radio navigational computers, display systems and power supply units concerned with the radio installation.

3 Prototype Apparatus

3.1 The acceptance of Radio Apparatus is based on examination of the design and quality in order to establish compliance with BCAR Section R and with such other United Kingdom requirements as are applicable.

NOTE: The CAA will consider an application for approval of apparatus for use in a restricted category, where the apparatus has not been approved by the competent Authority in the country of manufacture.

3.2 **Application for Approval.** Form AD 70, copies of which may be obtained from CAA, shall be completed and returned, together with the data and information prescribed in 3.3. Applications must also be accompanied by the correct fee, in accordance with the CAA Scheme of Charges. The total fee is based on the cost of investigation, whether or not formal approval is granted. The CAA will, during the course, or upon completion of the investigation, notify the applicant in writing of any charges due.

3.3 **General.** As a minimum to support the initial application for approval, the applicant shall provide the following:

a) Evidence that the apparatus is of a type approved by the competent Authority of the country in which it was manufactured, together with a copy of the type approval test report for the apparatus;

b) Evidence of the approval standard to which the apparatus has been certified, together with a DDP (see BCAR Section R, Chapter R3–1);

c) Two copies of manuals covering Installation, Maintenance and Overhaul;

d) A copy of the production test specification for the apparatus and evidence of the quality control procedures used in production;

e) Information regarding procedures for notification of modifications, the availability of spare parts, and the servicing arrangements which could be made available in the United Kingdom.

3.3.1 Should the information provided in accordance with 3.3 be insufficient to establish the acceptability of the apparatus, the CAA shall have the right to make such further

investigations, and to prescribe such further tests, as are necessary to establish whether or not compliance can be shown with the relevant requirements.

3.3.2 The CAA may require additional information to that provided in accordance with 3.3, and the provision of such information shall be the responsibility of the applicant. In cases where the applicant is not the manufacturer or the designer of the apparatus, the CAA reserves the right to consult the manufacturer, or the designer, directly on any matters concerning the approval of the apparatus.

3.3.3 It is preferable that the information provided for the CAA is in English.

3.3.4 Where continuity of quality cannot be vouched for by a competent Authority in the country in which the apparatus is manufactured, then such inspections and testing of series units as are necessary to establish quality shall be carried out by an appropriately approved Organisation in the United Kingdom.

3.3.5 The applicant shall ensure that the CAA is informed of modifications of the apparatus.

4 Series Apparatus

4.1 Series Radio Apparatus shall be certified by an appropriately Approved Organisation (see Sub-Section A8).

4.2 Each item of series Radio Apparatus shall be marked as follows:

a) Manufacturer's name;

b) Manufacturer's type designation;

c) Manufacturer's serial number;

d) Modification state;

e) Power supply characteristics;

f) The compass safe distance when this exceeds 30 cm (12 in);

g) To show any special requirements for installation, e.g. specific orientation.

5 Design Records

All relevant design information, drawings and test reports shall be held at the disposal of the CAA. No such design records shall be destroyed without authorisation from the CAA.

5.1 Each design drawing shall bear a descriptive title, drawing number, issue number, and date of issue. All alterations to drawings shall be made in accordance with a drawing amendment system such as will ensure amendment to design records.

5.2 Immediately an alteration is made to a drawing, whether the alteration is permanent or temporary, the drawing shall be identified with a new issue number and date. Where an alteration affects the interchangeability of any item in any way, a new part number shall be issued such as to avoid confusion with the original item.

5.3 The Production Test Specification shall constitute part of the design records.

6 Modifications

Where modifications affect the performance or other airworthiness characteristics of an item, a Form AD 70 shall be completed and returned as detailed in 3.1. Two copies of the details of the modification shall be forwarded to the CAA, preferably at an early stage in the design.

6.1 Where modifications are classified as mandatory by the CAA, a date shall be agreed with the CAA by which all affected apparatus is to be modified, that date to be quoted in the modification documents.

6.2 The DDP and the appropriate Manuals shall be amended where the modification affects the information in these documents.

NOTE: The general procedures for approval of modifications are prescribed in B2-5.

7 Inspection of Apparatus

Radio apparatus shall be made available to enable the CAA to inspect it, as necessary, for the purpose of approval.

INTENTIONALLY LEFT BLANK

Sub-Section B5
Continued Airworthiness - Responsibilities of the Type Design Organisation

Chapter B5-2 Maintenance Review Board (MRB)

1 Introduction

1.1 The guidance on the procedures for conducting a Maintenance Review Board (MRB) for a new aircraft type, and to establish an initial Maintenance Programme prior to certification can be found in BCAR Section A, (CAP 553), Sub-Section A5, Chapter A5-2. Industry involvement in MRB procedures and the production of the MRB Report are also described.

INTENTIONALLY LEFT BLANK

Chapter B5-4 Weight and Balance of Aircraft

1 Introduction

1.1 The requirements for the weighing of aircraft, the determination of the corresponding centre-of-gravity position and the provision of information from which the loading for flight can be correctly determined can be found in BCAR Section A (CAP 553), Section A5, Chapter A5-4.

INTENTIONALLY LEFT BLANK

Chapter B5-6 Mandatory Modifications and Inspections: Procedure for Classifications

1 Introduction

1.1 This Chapter contains information concerning classification, notification and identification of Mandatory Modifications and inspections and of availability of associated publications. Mandatory inspections, for the purpose of this Chapter B5-6 are those inspections classified as mandatory by the CAA, where the inspection itself is the work.

1.2 The provisions of Article 9(7) of the Air Navigation Order are such that, a Certificate of Airworthiness in respect of an aircraft registered in the United Kingdom, will cease to be in force until any modifications or inspection, being a modification or inspection required by the CAA, is completed.

2 Classification

2.1 The following modifications and inspections are classified as mandatory:

a) Those notified in a CAA Airworthiness Directive. These are normally notified initially by the product manufacturers documents[1] using an annotation in the following terms: "This modification/inspection has been classified as mandatory by the Civil Aviation Authority". The allocated CAA Airworthiness Directive number may not appear in the manufacturers documents but will be quoted when it is published in the Mandatory Modifications and Inspections Summary (see NOTE to paragraph 2.4);

b) Those notified in a CAA Emergency Airworthiness Directive;

c) Those necessary to comply with CAA Airworthiness Notices of a mandatory character (e.g. Nos. 41, 81).

2.2 Modifications and inspections are classified as mandatory by the CAA in consultation with the approved organisation concerned and, at the same time, the criterion for embodiment or compliance, e.g. a date, a number of hours or cycles, is decided.

2.3 In deciding a criterion for embodiment or compliance, the following are taken into account:

a) The degree of urgency;

b) The availability of modified parts and factors affecting their delivery, e.g. the number of products concerned and their geographical location;

c) The amount of work required to complete the modification/inspection.

2.4 Wherever possible, the criterion for embodiment or compliance is fixed to coincide with periodical inspections or overhauls so that the Operator has a reasonable amount of time for carrying out the work. In addition, consideration is given to the possibility of a special inspection procedure as, at least, a temporary alternative to the embodiment of a modification. Operators and their contracted maintenance organisations are expected, when necessary, to make priority arrangements to achieve compliance within the period specified.

1 Documents such as Service Bulletins, Technical News Sheets, etc. are used for this purpose.

NOTE: Mandatory modifications and inspections are promulgated in manufacturers' Service Bulletins, or equivalent documents, which contain a statement that the modification/inspection has been classified as mandatory by the Civil Aviation Authority. These Mandatory Modifications and inspections are summarised in the CAA publication, "Mandatory Aircraft Modifications and Inspections Summary".

2.5 The initial notification of a Mandatory Modification or inspection by the manufacturer (e.g. Service Bulletins, Technical News Sheet) is distributed to all known Operators of the aircraft and to all Airworthiness Authorities to whom those Operators are responsible.

2.6 In addition to the initial notification by the manufacturer (see paragraph 2.5), the CAA will advise the Responsible Authority of all ICAO Contracting States listed in the current edition of ICAO Circular 95–AN/78/3. The method of notification (e.g. telex, cable or airmail) will depend upon the urgency of the information. A further notification is made to those Responsible Authorities by the transmission of amendments to the publication "Mandatory Modifications and Inspections Summary" which they receive in accordance with Airworthiness Notice No. 22.

3 Documentation

3.1 The wording of documents (e.g. Modification Bulletins, Service Bulletins, Technical News Sheets) used to notify Mandatory Modifications and inspections shall be agreed by the CAA, and the documents shall be certified and published and distributed by the appropriate manufacturer's Approved Organisation. The documents shall have a title, reference number, issue or serial number, date, and contain the following:

a) A statement in the following form, or such other form as may be agreed by the CAA, to signify CAA Approval of the classification of the modification/inspection: "This modification/inspection has been classified as mandatory by the Civil Aviation Authority";

b) A statement of the type of aircraft, engine(s), equipment, etc., affected;

c) The compliance date, limiting flying hours, cycles, or details when the prescribed action must be taken;

d) Details of the work to be undertaken;

e) A statement that the Maintenance, Overhaul and Repair Manual, Crew Manual, Flight Manual and Maintenance Schedule is, or is not, affected by the modification/inspection.

3.2 The documents notifying Mandatory Modifications shall be distributed, where such information is available to the manufacturer, to:

a) all owners or Operators of the particular type(s) of aircraft concerned;

b) those Airworthiness Authorities to whom these owners or Operators are responsible;

c) where the modification or inspection derives from, other than the aircraft manufacturer (e.g. an engine manufacturer), to any aircraft manufacturer(s) whose aircraft are fitted with the item concerned and to the responsible Airworthiness Authority.

NOTES: 1 Owners, Operators, and Organisations undertaking overhaul/maintenance on aircraft should ensure that the manufacturer of each type of aircraft is informed of their names and addresses to facilitate distribution of the documents notifying Mandatory Modifications and inspections.

2 Information distributed in accordance with this paragraph 3.2 is summarised in the CAA Publication entitled "Mandatory Aircraft Modifications and Inspections Summary" which will be supplied to foreign airworthiness authorities on application to the Civil Aviation Authority (see CAA Airworthiness Notice No. 22).

INTENTIONALLY LEFT BLANK

Chapter B5-7 Master Minimum Equipment Lists

1 Introduction

1.1 Article 16 of the UK Air Navigation Order 2000, as amended, requires the permission of the CAA to be obtained before an aircraft may be despatched with an unserviceability.

1.2 Information and instructions intended to enable the determination of the measure of unserviceable equipment and systems which may exist at the commencement of a flight, while still allowing the safe operation of the affected aircraft shall be provided in the form of a Master Minimum Equipment List (MMEL) for the type, for approval by the CAA. Operators of aircraft of the appropriate type will use the information and instructions provided in the MMEL to produce their own Minimum Equipment List (MEL) or an equivalent document (see CAP 549).

1.3 For information regarding the format of MMELs – see Chapter B7–6.

2 Applicability and Scope

2.1 This requirement is applicable to any aircraft of other than United Kingdom design and construction for which a Certificate of Airworthiness (C of A) is in force, or, for which an application for issue of a C of A has been made, and which has an authorised MTWA exceeding 2730 kg, with the exception of those certificated in the Special Category, unless otherwise determined by the CAA.

2.2 **Scope of Master Minimum Equipment Lists**. The intent of an MMEL is that it should be relevant to the build standard of aircraft of that particular type and, with any necessary revisions, to any variants of that type.

NOTE: The MMEL is not intended to be used as an Operator's MEL.

3 Application for Approval of a Master Minimum Equipment List

3.1 Application may be made to the CAA for the approval of an MMEL. The applicant shall normally be the actual or the intended aircraft Type Certificate holder.

3.2 For types or variants for which application is made to the CAA for either the issue of a new UK Type Certificate or the extension of an existing Type Certificate, the provision of the approved MMEL may be considered to be an integral part of the Type Certification process. In such cases a separate application for approval of the MMEL will not be necessary.

3.3 An application for the approval of an MMEL, which is submitted separately from an application for Type Certification (or the extension of an existing Type Certificate), will be considered to constitute a modification (see 4 b)).

4 Charges

CAA charges for the investigation and approval of an MMEL will be levied as follows:

a) For a type which is the subject of a Type Certification programme such charges will be included in the Type Certification charges;

b) For a type for which application is made separately from that for Type Certification, such charges will be in accordance with the CAA Scheme of Charges appropriate to modifications current at the time of application.

5 CAA Investigation

The CAA reserves the right to investigate, in consultation as necessary with the manufacturer, the contents of the proposed MMEL and to require the embodiment of any revision or amendment it considers necessary to satisfy the requirements. When a standard acceptable to the CAA has been achieved the Type Design Organisation will be informed. The CAA will then arrange for the publication of an MMEL document conforming to the approved standard.

6 CAA Approval of Initial Master Minimum Equipment List for a Type

6.1 When the CAA has informed the Type Design Organisation that the proposed initial MMEL for the type has been approved, the document shall carry a statement indicating that approval, and shall be worded as follows:

Approved by the UK CIVIL AVIATION AUTHORITY

Signed: .....

For and on behalf of the CIVIL AVIATION AUTHORITY

Date: .....

Following signature on behalf of the CAA, this statement shall appear on the title page of each affected Master Minimum Equipment List (MMEL).

6.2 If an MMEL is published in part before completion, or before the appropriate aircraft type is certificated, it will be marked 'DRAFT' on the page and in the position normally occupied by the Approval Statement.

7 Issue of Approved Master Minimum Equipment Lists

7.1 In the case of new aircraft type of foreign construction, the CAA will assume the responsibility for the compilation and publication of the UK MMEL.

7.2 In the case of existing aircraft types for which no MMEL has previously been approved by the CAA, the CAA will assume the responsibility for the compilation and publication of the UK MMEL.

NOTE: In compiling the MMEL the CAA will take account of any existing MMEL, which has previously been approved by another Airworthiness Authority known to have standards broadly equivalent to those of the CAA. The CAA will need to make such changes to the already approved Foreign Airworthiness Authority MMEL as are necessary to satisfy those areas where UK legislation or CAA policies differ from those of the Authority of the State of Manufacture.

8 Content and Format of Master Minimum Equipment Lists

8.1 The instructions and information given in the MMEL must be presented in a manner which will enable the Operator to prepare the MEL, giving sufficient detail for a proper understanding of each subject, such that a decision on the extent of permissible unserviceabilities of equipment and systems at the commencement of a flight or series of flights can be reached by the Operator. See Master Minimum Equipment Lists (MMEL) and Minimum Equipment Lists (MEL) – Procedures (CAP 549).

NOTE: Where the data contained in an MMEL conflicts with data contained in the approved Flight Manual for an aircraft of the type, the limitations and information given in the Flight Manual shall be overriding.

8.2 The MMEL should utilise an agreed referencing system such as ATA 100 and be presented in a format acceptable to the CAA. It shall contain a list of Effective Pages, a Preamble which explains the scope, purpose and validity of the document, and an explanation of any coding or terminology used (see BCAR Chapter B7–6).

9 Amendment of Master Minimum Equipment Lists

9.1 Proposed revisions or amendments (regardless of their originator) which are introduced after the date of approval of an MMEL by the CAA, shall be separately approved. (See also paragraph 9.6.)

9.2 Applications for the approval of amendments to a Master Minimum Equipment List may be submitted by:

a) the Type Design Organisation approved for the design of the appropriate aircraft type;

b) an Operator of aircraft of that type (or his agent); or

c) the CAA.

Each such application shall be accompanied by a statement giving technical justification for the proposed amendment and any new or amended procedures (whether Maintenance (M) or Operational (O)). Any such amendments will be approved by the CAA in consultation with the Type Design Organisation or the Airworthiness Authority of the State of Manufacture.

9.3 When approved, revisions to an MMEL will be compiled by the CAA and made available to all registered holders of that MMEL, together with instructions for embodiment into the appropriate MMEL. The revision status and date of the affected page(s) shall be given in a revised List of Effective Pages.

9.4 When appropriate, Temporary Revisions (TRs) will be prepared by the CAA and inserted into an MMEL in cases where urgent change in the information and/or instructions presented is required. Such TRs must be recorded in a separate list of Effective Temporary Revisions which will identify the date of the TR, the permanent page affected, the means, if any, by which it is superseded and any relevant remarks. This list of TR's will be revised and updated when permanent revisions are approved and published.

9.5 TRs shall be made available to all registered holders of the appropriate MMEL, together with instructions for the embodiment and recording in the MMEL.

9.6 Revisions to MMELs approved by the Foreign Airworthiness Authority responsible for the aircraft type will normally be accepted and approved by the CAA without

investigation, other than in those areas where United Kingdom legislation varies or where different policies are applied by the CAA.

10 Modification of Aircraft

Applicants for approval of modifications to aircraft (Chapter B2–5) shall, at the time application is made, consider the effects of the proposed modification upon the information and instructions contained in the MMEL for the type, and shall inform the CAA of any revisions likely to be required as a consequence of the incorporation of the modification.

Chapter B5-8 Mandatory Action on Aircraft Operating in Accordance with a Permit to Fly

1 Introduction

1.1 This Chapter prescribes the requirements and procedure for reporting, promulgating and implementing action declared as mandatory by the CAA in respect of aircraft registered in the United Kingdom and operating in accordance with a Permit to Fly, as described in BCAR Section A (CAP 553), Section A5, Chapter A5-8.

INTENTIONALLY LEFT BLANK

Sub-Section B6
Continued Airworthiness - Responsibilites of the Owner/Operator

Chapter B6-1 Maintenance and Continuing Airworthiness of Non-EASA Aircraft

1 Scope

1.1 This requirement establishes the measures to be taken to ensure that the aircraft remains airworthy and includes details of the maintenance to be carried out. It also specifies the conditions to be met by the persons or organisations involved in such continuing airworthiness management as outlined in BCAR Section A (CAP 553), Sub-Section 6, Chapter A6-1.

INTENTIONALLY LEFT BLANK

Chapter B6-4 Weight and Balance of Aircraft

1 Introduction

1.1 The requirements for the weighing of aircraft, the determination of the corresponding centre-of-gravity position and the provision of information from which the loading for flight can be correctly determined, can be found in BCAR Section A (CAP 553), Section A6, Chapter A6-4.

INTENTIONALLY LEFT BLANK

Chapter B6-5 Minimum Equipment Lists (MEL)

1 Introduction

1.1 Information and instructions intended to enable the determination of the extent of unserviceable equipment and systems which may exist at the commencement of a flight while still allowing the safe operation of the affected aircraft shall be provided in the form of a Minimum Equipment List (MEL) can be found in BCAR Section A (CAP 553), Sub-Section 6, Chapter A6-5.

INTENTIONALLY LEFT BLANK

Chapter B6-6 Mandatory Modifications and Inspections: Procedure for Implementation

1 Introduction

1.1 Modifications, inspections and changes to approved documentation considered essential for airworthiness will be classified as mandatory by the CAA in consultation, where appropriate, with the responsible Approved Organisation, and the compliance date, limiting flying hours, cycles, and details relating to the action prescribed, will be decided in accordance with BCAR Section A (CAP 553), Sub-Section 6, Chapter A6-6.

INTENTIONALLY LEFT BLANK

Chapter B6-8 Flight Testing after Modification or Repair

1 General

1.1 The flight testing of aircraft shall comply with the procedures set out in BCAR Section A, Sub-Section A6, Chapter A6-8.

INTENTIONALLY LEFT BLANK

Sub-Section B7
Procedures for the Approval of Documents and Manuals for Operation and Maintenance of Aircraft

Chapter B7-2 Flight Manuals

1 Introduction

1.1 A Flight Manual is a document prescribed by the International Civil Aviation Organisation and is intended primarily for use by the flight crew. The Manual contains limitations, recommended procedures and information of a nature such that adherence to it will enable the level of safety which is intended by the Airworthiness Requirements and the Air Navigation legislation to be regularly achieved. The Flight Manual, by definition in the Air Navigation Order, forms part of the Certificate of Airworthiness.

NOTES: 1) The requirements of this Chapter do not apply to aircraft of which the Prototype was certified before 5th April, 1949.

2) In this Chapter, the term 'Flight Manual' includes any documents accepted in place of a Flight Manual.

1.2 Flight Manuals and amendments thereto shall be approved, amended, and published in accordance with the procedures set out in this Chapter B7–2.

2 Aircraft Designed and Constructed Outside the United Kingdom

2.1 **Applicability** The requirements and procedures of this Chapter B7–2 are applicable to Flight Manuals which are required to be provided as part of the certification documentation of a type of aircraft new to the United Kingdom and to new Flight Manuals for Variants or Series aircraft designed and constructed outside the United Kingdom for which an application has been made for a United Kingdom Certificate of Airworthiness, except for those aircraft designed by an Organisation approved by the CAA, in which case the procedures of A7–2 shall apply.

2.1.1 In respect of aircraft, the Maximum Total Weight Authorised of which does not exceed 2730 kg, a Flight Manual need not be supplied provided that:

a) a Flight Manual is not prescribed as a mandatory part of the Certificate of Airworthiness by the Responsible Authority of the State of Origin of the aircraft; and

b) the limitations, procedures and information necessary for the operation of the aircraft in accordance with the Air Navigation Order are promulgated in an acceptable document other than a Flight Manual.

2.2 **General**

2.2.1 Flight Manuals and all amendments thereto shall be subject to acceptance or approval, as appropriate, by the CAA.

2.2.2 Flight Manuals provided in compliance with this paragraph 2 shall be approved in accordance with procedures acceptable to the Responsible Authority of the State of Origin of the aircraft (hereinafter referred to as the 'Responsible Authority'), and in addition shall comply with any Special Conditions prescribed by the CAA.

NOTE: It is the usual practice for Flight Manuals to be prepared and published by the manufacturer[1], but a Manual prepared and published by some other body[1] will be acceptable provided that it complies with paragraph 2.2.2.

2.2.3 For Flight Manuals provided in compliance with this paragraph 2, the applicant shall be responsible for, and shall make the necessary arrangements to ensure, the supply of any amendments which are necessary to keep the Flight Manual up to date for as long as an aircraft of the type remains registered in the United Kingdom (see paragraph 2.4).

2.2.4 Flight Manuals provided in compliance with this paragraph shall be in the English language.

2.3 **Acceptance and Publication of Initial Manual**

2.3.1 The CAA will, after taking account of the size and complexity of the aircraft, advise the applicant of the CAA timetable for Approving the Flight Manual.

2.3.2 The Flight Manual shall be identified either by a unique reference number, or by the exact designation of all the aircraft to which the Manual is to apply.

2.3.3 Three copies of the Flight Manual or an electronic submission shall be supplied to the CAA for examination and acceptance in accordance with the agreed timetable.

2.3.4 When the CAA has completed its examination of the Flight Manual, the applicant will be notified of CAA acceptance or of any alterations to it which are considered necessary prior to such acceptance.

2.3.5 When the Flight Manual is acceptable to the CAA, one copy, in the final form, shall be sent to the CAA for their retention. This maybe in electronic format.

2.4 **Acceptance or Approval and Publication of Amendments.** The procedure for the amendment of Flight Manuals accepted and published in accordance with paragraph 2.3 shall be in accordance with this paragraph 2.4.

a) For mandatory amendments required for safety reasons the information will be promulgated as an Airworthiness Directive.

b) For other amendments, submissions shall be provided only through the medium of an organisation approved by the CAA and in accordance with paragraph 2.4.3.

c) The Operator shall in accordance with the instructions provided, embody the amendments. The Operator shall make available to the CAA, when so required, the relevant records and each pertinent Flight Manual.

2.4.1 The applicant shall supply such amendment material as is necessary to maintain compliance with paragraph 2.2.3, and shall indicate to which aircraft the proposed amendments are applicable.

2.4.2 Amendments which are initiated by the Originator of the Manual shall be processed and accepted in accordance with paragraph 2.4.4.

2.4.3 Changes which are initiated by an applicant other than the Originator of the Manual or the CAA shall be processed and accepted in accordance with paragraph 2.4.4, and shall be effected either by means of a Change Sheet or by a Supplement.

a) Each Change Sheet or Supplement shall, unless agreed otherwise by the CAA, be produced by, and shall be submitted for approval through, the medium of an Organisation Approved for the purpose, and shall comply with the appropriate requirements.

1 Hereinafter referred to as the Originator of the Manual.

NOTES: 1 Where the amendment involves the copying of a previously approved amendment or alterations to reflect changes of relatively small significance, material may be accepted from suitable Organisations not formally approved by the CAA.

2 A Change Sheet, which consists of an additional page or pages, is normally used to cover simple changes to existing data. It is embodied in the Flight Manual adjacent to the basic page to which the change relates.

3 A Supplement is normally used to introduce a new role for the aircraft or the installation of major items of equipment.

2.4.4 The requirements of this paragraph 2.4.4 are applicable to amendments initiated in accordance with paragraph 2.4.2 or 2.4.3.

a) Three copies of the proposed amendments or an electronic submission shall be sent to the CAA for acceptance or approval, at least three weeks in advance of the desired date for publication.

NOTE: In the respect of amendments already approved by the Responsible Authority, the investigation by the CAA will normally be limited to the extent necessary to ensure that the amendments are consistent with:

i) The basis upon which the type of aircraft was certificated.

ii) Current United Kingdom Air Navigation legislation.

b) The applicant shall make any alterations which the CAA may consider necessary at this stage.

c) When the amendments have been approved by the CAA, one copy of the amendments to be made to the Flight Manual of each particular aircraft, together with embodiment instructions, shall be sent by the Originator of the Manual or applicant, as appropriate, to the owner or Operator of each aircraft affected.

d) A copy of the amendments as approved or accepted, as appropriate, shall be supplied to the CAA for retention.

e) The Operators shall, in accordance with the instructions provided, incorporate the amendments.

3 Certificate of Airworthiness Renewal

3.1 In respect of an aircraft which, before renewal of the Certificate of Airworthiness, has been registered in a foreign State and is to be registered in the United Kingdom, it may be necessary to obtain a new Flight Manual, to a standard acceptable for the type, in accordance with 2.3.

INTENTIONALLY LEFT BLANK

Chapter B7-3 Crew Manuals

1 Introduction

1.1 Information and instructions necessary to enable the crew to acquire an understanding of the aircraft essential for its safe operation shall be provided by the Type Design Organisation of a public transport aircraft to be granted a United Kingdom Certificate of Airworthiness. The information and instructions may form part of the Operations Manual, or may be produced as a separate document, which shall be entitled 'Crew Manual'. Further information can be found in BCAR Section A (CAP553), Sub-Section A7, Chapter A7-3.

INTENTIONALLY LEFT BLANK

Chapter B7-4 Maintenance, Overhaul and Repair Manuals

1 Introduction

Manuals containing information and recommendations necessary for the maintenance, overhaul and repair of aircraft, including engines and auxiliary power units, propellers, components, accessories, equipment, instruments, electrical and radio apparatus and their associated systems, and radio station fixed fittings, shall be provided by the manufacturer. This Chapter B7–4 is to provide guidance in the compilation of such Manuals.

2 Aircraft Maintenance Manual

This should include the information described in paragraphs 2.1 to 2.11.

2.1 **Introduction.** A brief survey of the aircraft features and data of general interest.

2.2 **Description.** The construction of the aircraft including its control surfaces, landing gear, flying control systems and all other systems, e.g. hydraulic, pneumatic, vacuum and de-icing; all installations, e.g. engine, auxiliary power unit, propeller, instrument, electrical, and radio station fixed fittings and all equipment installations, e.g. lifebelts, dinghies, fire detection and prevention. Where necessary, the purpose of individual parts should be described.

2.3 **Operation**. The method whereby the components, systems and installations achieve their designed purpose.

2.4 **Control.** The method of operating the components, systems and installations together with any special procedures and limitations.

2.5 **Servicing.** Details regarding servicing points, capacities of tanks, reservoirs, etc., types of fluid to be used, with details of any anti-corrosive measures to be taken, pressures applicable to the various systems, position of access or inspection panels, walkways and drain locations, lubrication points and the lubricants to be used. Details of servicing equipment, ground handling details such as taxying, towing, parking, mooring, jacking and levelling, and loading data including loading limitations. Details of ground de-icing fluids and other fluids where contamination could cause a dangerous deterioration in airworthiness.

NOTE: Suitable de-icing and cleaning fluids which are approved for use by the aircraft manufacturer may be listed, together with information concerning the means to counteract any detrimental action which might result from their use.

2.5.1 Procedures for the ground de-icing and anti-icing of aircraft should be included in the Maintenance Manual or in a separate document referred to in the Maintenance Manual.

2.6 **Maintenance**

2.6.1 **Schedule.** The recommended periods at which each part of the aircraft, engine, auxiliary power units, propellers, the accessories, instruments and equipment, should be cleaned, inspected, adjusted, tested and lubricated, and the degree of inspection recommended at the periods quoted. The recommended periods at which components and accessories should be overhauled, the Mandatory Life Limitations identified, and a cross-reference to the section of the Overhaul Manual which lists the Mandatory Life Limitations of engine or propeller parts. A procedure for converting flying hours or

landings, as applicable, into life units (e.g. cycles) together with the assumptions made with regard to the "typical cycle" on which the lives are based.

2.6.2 **Procedures.** The methods to be used for implementing the recommended schedule, e.g. methods of access to specified parts, methods of inspection, including those of carrying out duplicate inspections of vital points control systems.

2.6.3 **Faults and Rectification.** The faults which may arise during service or those which may be found as a result of inspection, together with suggested causes and recommended methods of rectification.

2.6.4 **Adjustments and Testing.** The methods of completing the adjustments or tests which may be required during service or to correct faults, e.g. control movements with permissible tolerances.

2.7 **Removal and Assembly.** The order and method of removing and refitting components and accessories, together with details of any special precautions to be observed.

2.8 **Line Repairs.** Repairs of a temporary or minor nature which, in the opinion of the manufacturer, could be applied to the aircraft whilst remote from suitable facilities.

2.9 **General Procedures.** The method of applying general procedures such as system testing during ground running, checks after a heavy landing, change of role, symmetry checks, weighing and determination of centre-of-gravity and salvage considerations, such as lifting and shoring.

2.10 Details of crating and unpacking of components, as considered necessary; conditions of storage, with recommended limiting periods, and component dimensions and weights.

2.11 **Compliance.** The manner of complying with the above should be such that it is primarily directed to those persons who will be responsible for maintaining a complete aircraft in a state of airworthiness.

NOTE: The aircraft Maintenance Manual should not contain data relating to the complete overhaul of a component.

3 Aircraft Overhaul Manual

This should include the information described in paragraphs 3.1 to 3.5.

3.1 **Aircraft Structures and Control Surfaces**. The extent of overhaul data for structures including control surfaces should be such as to ensure that owners and Operators are made aware at an early stage of the recommended standard of overhaul required initially to ensure the continued airworthiness of the structures including control surfaces over a stated period of hours flying and/or elapsed calendar time, or at the termination of a specified number of flights and/or landings. Subsequent amendments should be made as necessary to acquaint owners and Operators of the latest findings or experience so that the manual reflects current knowledge of the aircraft thereby enabling increases or decreases, as appropriate, to be made in the recommended periods.

3.2 **Integrity of Structures.** Information, as detailed below, should be provided initially for the main aircraft structures.

3.2.1 Illustrations which show clearly the construction of the structures, with descriptive text to clarify the illustrations and draw attention to those parts which require detailed attention during overhaul.

3.2.2 Diagrams showing those parts of the structure to which access cannot be gained through the normal inspection doors and panels, the diagrams being supplemented by a table defining the limits of inaccessibility.

3.2.3 Diagrams showing structures classified as primary and secondary.

3.2.4 Table showing the recommended limiting periods at which designated parts of the structure should be overhauled in compliance with the standards given in the following paragraphs.

3.2.5 Information giving the methods and the extent of dismantling necessary to gain access to normally inaccessible structure, e.g. whether by removal of skin, by provision of additional panels, removal of fuel tanks, etc., and detailing any special opportunities of gaining access to normally inaccessible structure, e.g. during any component change programme.

3.2.6 A tabulated schedule of overhaul, relating to paragraphs 3.2.2 and 3.2.4, which defines the overhaul work and inspections and tests necessary after the normally inaccessible structure has been reached, and the method of implementing the schedule.

3.2.7 Details on the application of special inspection techniques, e.g. radiographic and ultrasonic testing, with a proven technique of examination where such processes are required. The limitations of such processes and limits of their applicability should be clearly defined. Any special techniques necessary for proving the serviceability of castings, forgings, tubular members, etc., should be given.

3.2.8 Details of the protective treatment to be used to restore the original standard of protection, the final inspection of the structure or control surfaces, and the methods of closing structure which has been opened.

3.2.9 Details regarding the correlation of the bolt/joint overhaul programme (see paragraph 3.3.1) with the prescribed sampling programme, and the necessity to overhaul accessories and equipment in normally inaccessible structure at the structure overhaul periods.

3.3 Integrity of Attachments and Joint Assemblies

3.3.1 Diagrams showing the positions of bolt and stud holes in spar booms and other primary structure, and in such secondary structure where, if failure occurs the associated primary structure may be affected. The diagrams should be annotated or marked to show the bolt or stud holes which are accessible and those normally inaccessible; the size of the holes and whether bushed; the materials forming the mating surfaces; fits and clearances and dimensional limits and a reference to identify the holes.

3.3.2 Using the reference identifying the holes, tables giving the total number of holes, recommended number of bolts or studs to be withdrawn from each group for Operators having fleets of 2, 5, 10 and 20 aircraft, recommended number of bushes to be withdrawn, and recommended number of hours flying, flights, landings and/or the elapsed time at which bolts, studs or bushes should be withdrawn, having regard to the possibility of fatigue, fretting and corrosion.

NOTE: Where an arrangement has been made between Operators by the manufacturers for a shared programme of bolt and hole sampling, it is recommended that details of the programme be provided in Service Bulletins, etc.

3.3.3 Details of the methods and extent of dismantling necessary to gain access to the nominated bolts or studs where this differs from paragraph 3.2.5.

3.3.4 Details of the precautions necessary during the removal of bolts or studs, special tools or equipment necessary, the recommended inspection and crack detection procedure, e.g. penetrant or fluorescent dyes, special optical instruments, etc., salvage methods

and limitations, schedule of oversize bolts, studs, and bushes available, protective treatment, methods of re-assembly and locking, including torque loading data, and details of recording schemes to identify the bolts, studs or holes examined.

3.4 **Mandatory Life Limitations.** A Schedule detailing those parts of the aircraft and the aircraft structure which are to be replaced by new parts and the mandatory periods of renewal.

3.5 **Aircraft Systems.** Details of recommended overhaul practices of aircraft systems such as flying controls, hydraulic and electrical installations.

4 Aircraft Repair Manual

4.1 This manual should be confined to a description of the repairs applicable to the aircraft structure and components, and to those parts of the systems and installations which are the design responsibility of the aircraft manufacturer, and should include the information described in paragraphs 4.2 to 4.11.

4.2 **Introduction.** General notes on the contents and usage of the manual.

4.3 **General Information.** Details of recommended repair procedures and practices which have a general application, with diagrams showing:

a) structures classified as primary and secondary with areas or parts where repairs are not permissible clearly defined;

b) the construction of main structures and components with station positions which define the extent of skin panels, and the construction of primary longitudinals, frames, stringers and ribs, with details of the dimensions and materials used;

c) tables of standard and special extruded sections with, where applicable, approved alternatives;

d) tables of fasteners for each part of the structure, with information on the areas where oversize fasteners may be used.

4.3.1 Details of process specifications, heat treatment procedures, protective treatment requirements, precautions necessary during repairs, e.g. damage by drilling into hidden structures and building in assembly stresses, details of special processes such as metal-to-metal bonding, welding, sealing of pressurised structures, etc.

4.4 **Preparation for Repair.** Details of, for example, the inspection necessary before repair, damage assessment standards, methods of supporting the structure, alignment and geometry checks, material allowance for dressing of damage, and limits of wear.

4.5 **Tools and Equipment.** A list of tools and equipment necessary for applying repairs, with details of their purpose and method of use.

4.6 **Temporary Repairs.** Details of repairs of a temporary nature which would permit the aircraft to return to base for a permanent repair.

4.7 **Standard Repairs.** Details of repairs which can, within defined limits, be applied as applicable, to various structures, systems and installations.

4.8 **Minor Repairs.** Details of permanent repairs which apply only to specified parts of the structure or particular components. Each part of the aircraft structure, its systems and installations should be considered, the sub-divisions of this section following the same sequence as that used in the Maintenance Manual. Only minor repairs, which do not require extensive dismantling or the use of special jigs or equipment, should be included.

4.9 **Major Repairs.** Details of permanent repairs which would normally only be completed at the main base, e.g. those which would require the use of special jigs and equipment.

4.10 **Checking and Testing after Repair.** Details of those checks or tests necessary after repair, e.g. structure alignment checks, adjustment of control surface balance and fuselage pressure testing.

4.11 **General.** The repair schemes specified in paragraphs 4.6 to 4.9 should, as far as possible, be diagrammatically presented with the text adjacent, giving details of negligible damage, the limits of repairable damage, the applicability of the particular repair and the procedure involved in its embodiment.

5 Engine and Auxiliary Power Unit Manuals

Engine and Auxiliary Power Unit Manuals should contain the following descriptive, servicing, maintenance and overhaul data relating to the engine, and similar data relating to those components and accessories either on the engine or in the power unit, in respect of which an application for design approval has been made by the engine manufacturer. Such data should conform to the recommendations of paragraph 7.

5.1 Engine and Auxiliary Power Unit Maintenance Manuals

5.1.1 **Introduction.** A brief description of the engine and engine systems.

5.1.2 **Description.** A detailed description of the construction of the engine, including the systems and, where necessary, the purpose of the individual parts. For modular engines, details of the division of the engine into modules (see CS–E Section C, Chapter C1–2 for definition) giving the nomenclature and clearly defining the boundaries for each module.

5.1.3 **Operation.** The method whereby the components, systems and installations achieve their design purpose.

5.1.4 **Installation.** Methods of uncrating, acceptance checking, de-inhibiting, lifting, and installing an engine into a power unit, the method of attaching accessories to an engine or power unit, and the checks necessary after such installation.

5.1.5 **Control.** Methods of starting, running, testing and stopping the engine and its components, systems and installations, with any special procedures and limitations.

5.1.6 **Servicing.** Details regarding servicing procedures, capacities of tanks, reservoirs, etc., types of fluid to be used, and the draining of collector tanks.

5.1.7 **Maintenance**

a) **Schedule and Procedures.** Compliance with the recommendations in paragraphs 2.6.1 and 2.6.2.

b) **Faults and Rectification.** Compliance with the recommendations in paragraph 2.6.3, together with inspections necessary after abnormal circumstances, such as shock loading, sudden stoppage, excessive out of balance, fire, over-speed, over-temperature, or any other excursions outside approved limitations.

c) **Adjustments, Component Removals and Testing.** The method of completing those adjustments, tests or removal of components, e.g. cylinders or combustion chambers, which may be required during service or to correct faults.

d) **Modular Engines.** In respect of modular engines, in addition to a), b) and c):

i) In carrying out a module change, the means of checking the serviceability of the other modules fitted to the engine (e.g. establishing that they have not been adversely affected by blade damage, oil contamination, internal air system contamination);

ii) The compatible modification standards for the interchange of modules;

iii) Details of the methods, tests and equipment by means of which adequate engine performance, functioning and mechanical integrity (e.g. freedom from leaks, oil consumption, oil pressure, run down time) may be established following a module change on an installed engine.

5.1.8 **Removal.** The order and method of removing the engine from a power unit, and the removal of accessories from either the engine or the power unit, with the methods of engine lifting, inhibiting and crating for return to manufacturer or base.

5.1.9 **Tools and Equipment.** Tools and equipment necessary for maintenance with details of their purpose and method of use.

5.1.10 **Mandatory Life Limitations.** A procedure for converting flying hours, or landings, as applicable, into life units (e.g. cycles) together with the assumptions made with regard to the "typical cycle" on which the lives are based.

5.2 **Engine and Auxiliary Power Unit Overhaul Manuals**

5.2.1 **Tools and Equipment.** Tools and equipment necessary for overhaul and testing, with details of their purpose and method of use.

5.2.2 **Dismantling.** The order and method of dismantling for overhaul.

5.2.3 **Cleaning and Inspection.** The materials, equipment and methods to be used for cleaning. The materials and equipment to be used, and the standards and methods of inspection to be applied, during overhaul, and also after abnormal circumstances such as shock loading, sudden stoppage, excessive out of balance, fire, over-speed, over-temperature or any other excursions outside approved limitations.

5.2.4 **Fits and Clearances.** Details of all relevant fits and clearances.

5.2.5 **Repair and Salvage Schemes.** Details of all applicable repair and salvage schemes.

5.2.6 **Re-assembly.** Description of the order and method of assembly at overhaul.

5.2.7 **Testing.** Details of the standards to be observed, the method of completing tests, and a list of faults which may occur during testing, together with possible causes and methods of rectification.

5.2.8 **Storage Conditions and Limiting Period.** Details of the conditions of storage and the recommended limiting storage periods.

5.2.9 **Mandatory Life Limitations.** A list of the relevant parts, with details of the Mandatory Life Limitations, with a cross reference to the Maintenance Manual for the procedure for converting flying hours or landings, as applicable, into life units (e.g. cycles) together with the assumptions made with regard to the "typical cycle" on which the lives are based.

6 Propeller Manuals

Propeller manuals should contain descriptive, servicing maintenance and overhaul data relating to the propeller and similar data relating to those accessories concerned with the functioning and control of the propeller in respect of which an application for design approval has been made, as outlined in paragraphs 6.1 and 6.2; such accessory data should conform to the recommendations of paragraph 7.

6.1 **Propeller Maintenance Manual**

6.1.1 **Introduction.** A brief description of the propeller and propeller systems.

6.1.2 **Description.** A detailed description of the construction of the propeller.

6.1.3 **Operation.** The method whereby the propeller and the propeller systems achieve their designed purpose.

6.1.4 **Installation.** The method of uncrating, acceptance checking, lifting and installing the propeller.

6.1.5 **Control.** The method of checking the operation of the propeller during engine running, with details of any special procedures and limitations.

6.1.6 **Maintenance**

a) **Schedule and Procedures.** Compliance with the recommendations in paragraphs 2.6.1 and 2.6.2.

b) **Faults and Rectification.** Compliance with the recommendations in paragraph 2.6.3.

c) **Adjustments.** The methods of completing those adjustments which are necessary during service or to correct faults.

6.1.7 **Removal.** The order and method of removing the propeller from the engine.

6.1.8 **Mandatory Life Limitations.** A procedure for converting flying hours or landings, as applicable, into life units (e.g. cycles) together with the assumptions made with regard to the "typical cycle" on which the lives are based.

6.2 **Propeller Overhaul Manual.** Compliance to the standards recommended in paragraph 5.2.

7 Accessory, Instrument and Electrical Equipment Manuals

Separate manuals should normally be provided by the accessory, instrument or equipment manufacturer for a) Maintenance and b) Overhaul, the manuals containing data which conforms to the standard indicated by the subjects detailed below, where applicable.

7.1 **Maintenance Manuals**

7.1.1 **Description, Operation and Data**

Description
Operation
Data

7.1.2 **Unpacking**

7.1.3 **Acceptance Checks**

7.1.4 **Storage Instructions**

Conditions
Limiting Periods (recommended)

7.1.5 **Checks/Tests Before Installation**

7.1.6 **Installation**

7.1.7 **Checks/Tests After Installation**

7.1.8 **Operation Instructions**

7.1.9 **Maintenance Schedule.** To include recommendations in respect of overhaul periods and/or Mandatory Life Limitations, as appropriate.

NOTE: In certain circumstances life limitations may become mandatory; in such cases these must be indicated.

7.1.10 **Trouble Shooting Procedures**

7.1.11 **Removal**

7.1.12 **Bench Checks**

7.1.13 **Return to Manufacturer or Base**

7.2 **Overhaul Manuals**

7.2.1 **Description, Operation and Data**

Description
Operation
Data

7.2.2 **Disassembly.** To include any checks or tests considered necessary before disassembly, and a list of items which are to be discarded and replaced by new parts at overhaul.

7.2.3 **Cleaning**

7.2.4 **Inspection/Check**

7.2.5 **Repair**

7.2.6 **Assembly**

7.2.7 **Fits and Clearances**

7.2.8 **Testing**

7.2.9 **Trouble Shooting Procedures**

7.2.10 **Storage Instructions**

Conditions
Limiting Periods (recommended)

7.2.11 **Special Tools, Fixtures and Equipment**

8 Replacement Parts

8.1 Unless Manuals include detailed part identification of all replacement parts appropriate to the work described in the Manual, a statement should be included in each appropriate Manual specifying the documents which identify these parts.

8.1.1 Each Manual should also contain a statement that all replacement parts must be either those parts detailed in the manufacturers' publications or documents, or approved alternative parts.

Appendix 1 to B7-4

Automatic Test Equipment Software

1 Introduction

1.1 The requirements of this Appendix are applicable to any Automatic Test Equipment (ATE) Software, which is essential to the use of ATE in testing a specific airborne equipment, where the ATE Software is provided as an alternative to, or in place of, conventional test procedures in Maintenance, Overhaul or Repair Manuals. The requirements do not apply to either ATE Software used by a manufacturer as part of the process leading to certification of a new product or test equipment which is an integral part of airborne equipment (built-in test equipment – BITE).

2 Definitions

2.1 **ATE Software Design Control Authority.** The ATE Software Design Control Authority is the original producer of ATE software or, if the software has been revised, the organisation certifying the revisions.

2.2 **Data Processing Terms.** The terms used in this Appendix are in accordance with British Standard BS 3527, Glossary of Terms used in Data Processing.

3 General

3.1 Except as otherwise agreed by the CAA, software produced in accordance with this Appendix shall be certified and published under the authority of an appropriately approved Organisation and shall relate accurately to the design and production standard of both the specific airborne equipment to be tested and the ATE itself. In particular, programs shall be allocated a coding or part number which can be directly related to the build standards of both the ATE and the unit under test (UUT). Failing adequate protection being provided within the ATE, object program content shall include protection against unauthorised editing.

3.2 The CAA reserves the right to require the re-assessment of the content of any certified software and to require the embodiment of any revision or amendment which is considered necessary to satisfy the requirements of 3, 4, 5, and 6.

3.3 Software, produced by an Approved Organisation, must be associated with a statement that it complies with the requirements of this Appendix.

3.4 Software, when used with the automatic test equipment to which it relates, shall be such as to ensure that all specified tests of the specific airborne equipment are either completed satisfactorily or result in an unambiguous indication to the contrary.

3.5 The certification shall be worded as follows and must appear on the relevant record sheet:

The software identified ..... complies with BCAR Section B Chapter B7–4, Appendix No. 1.

Signed .....

Date .....

CAA Approval No. .....

NOTE: The above certification does not apply to revisions or amendments made by other Approved Organisations after the date of initial certification. Revisions or amendments made by other Approved Organisations must each be separately certified. Suitable records shall be maintained of all revisions or amendments (whether temporary or permanent) to ATE software.

The following information is for guidance in preparing Automatic Test Equipment (ATE) software to comply with the requirements of this Appendix. It is biased towards systems which are computer controlled but the principle can also be applied to sequential tape controlled equipment.

4 Software Related to the Testing of Specific Airborne Equipment

4.1 The software should normally consist of three main parts, together with associated record and control documentation, as follows:

a) A test specification in plain English or the Abbreviated Test Language for Avionic Systems (ATLAS) which will normally be that contained in the Overhaul Manual for the airborne equipment under test;

b) A test sequence in a test program format suitable for the particular automatic test equipment (SOURCE PROGRAM);

c) A test sequence in the media (e.g. magnetic disc, tape) used to control the particular automatic test equipment (OBJECT PROGRAM).

4.2 Each of the above parts should separately be subject to issue control and modification procedure.

4.3 Programs should be specified in a manner which satisfies the requirements of 2.1 a), having due regard to the characteristics of the equipment under test and taking account of the inherent limitations of the automatic test equipment. Particular attention should be paid to ensure that programs do not lead to circumstances which induce incipient damage into the equipment under test.

4.4 All programs should be fully debugged and validated prior to certification.

5 Software Related to Specific Automatic Test Equipment

5.1 All software, e.g. assemblers, compilers, self test programs, should be fully documented, debugged and validated prior to certification.

6 Review and Amendment of Software

6.1 Certified software shall be reviewed by the ATE software design control authority at periods not exceeding six months and where changes have been made affecting the validity of the software, permanent revisions or amendments shall be published.

6.1.1 The certification of permanent revisions or amendments shall be as follows:

STATEMENT OF REVISION/AMENDMENT

Software Identification .....

This permanent revision/amendment complies with British Civil Airworthiness Requirements, Section B, Chapter B7–4.

Signed .....

Date .....

CAA Approval No. .....

6.2 Operators with appropriate approval may amend ATE software without reference to the originating ATE software design control authority, provided that the amendment of ATE software is within the terms of their CAA Approval. However, co-operation with the appropriate airborne equipment manufacturer should normally be undertaken in order to ensure that ATE software adequately meets the test requirement of the UUT. Any Operator undertaking amendment of ATE software shall proceed as follows:

a) Prepare a revision or amendment in compliance with this Chapter B7–4;

b) Incorporate the revision or amendment in the program and retain an appropriate record of the details of the amendment. The record can be in any convenient form, e.g. log book, record sheets or retention of pre-revision tapes for comparison.

INTENTIONALLY LEFT BLANK

Chapter B7-6 Minimum Equipment Lists

1 Introduction

The information in this Chapter is for guidance in compiling Minimum Equipment Lists to comply with the requirements of Chapter B6–5.

2 Purpose

2.1 The purpose of the approved Master Minimum Equipment List (MMEL) required by Chapter B5–7 is to provide a Master List of permitted unserviceable equipment and systems for any aircraft of that given type at the time of despatch, which is certificated in the categories referred to in paragraph 2 of Chapter B5–7 and is within the weight limits referred to in that paragraph. Such MMELs will constitute the maximum permissible level of unserviceabilities for affected aircraft of the given type.

2.2 Operators of aircraft to which paragraph 2 of Chapter B5–7 applies can produce their own Minimum Equipment List (MEL) to enable the Permission required by Article 16 of the UK ANO to be granted (see CAP 360 and CAP 549). The MEL shall be no less restrictive than the MMEL.

3 Format - MEL

Unless otherwise determined by the CAA the format of the MEL prepared by an Operator shall comply in general with that of the approved MMEL (Chapter A7-6, paragraph 3) for the particular aircraft type. Variations in the layout used to take account of varying equipment and systems installations, differences due to aircraft variants within a given type and Operators circumstances, experience, capabilities, route structures and practices etc., will be permitted within the overall constraint that an MEL shall be no less restrictive than the corresponding MMEL. (See CAP 360 Part One and CAP 549.)

INTENTIONALLY LEFT BLANK

Chapter B7-9 Modification Record Book

1 Introduction

1.1 The Modification Record Book is a statement of the modification history of the aircraft to which it relates. Further information can be found in BCAR Section A (CAP 553), Sub-Section A7, Chapter A7-9.

INTENTIONALLY LEFT BLANK

Chapter B7-10 Weight and Balance Report

1 Introduction

1.1 The guidance for compiling weight and balance reports and weight and centre-of-gravity schedules, can be found in BCAR Section A (CAP 553), Sub-Section A7, Chapter A7-10.

INTENTIONALLY LEFT BLANK