

Safety Regulation Group



CAP 455

Airworthiness Notices

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Safety Regulation Group



CAP 455

Airworthiness Notices

29 September 2006

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Enquiries regarding the content of this publication should be addressed to:
Policy and Standards Department, Safety Regulation Group, Civil Aviation Authority, Aviation House,
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Revision History

March 2006 Amendment

The Contents Page has been updated from Issue 137 to Issue 138.

A new Revision History has been inserted into the CAP.

Airworthiness Notices 1, 6, 12 (Appendix 61), 13 and 32 have been updated to refer to the 2005 Amendment of the Air Navigation Order.

Airworthiness Notices 21 and 48 have been amended (and Appendix 3 to Airworthiness Notice 14 deleted and replaced with Appendix 4) to take account of the fact that the UK BCAR approvals no longer apply to EASA aircraft.

Airworthiness Notices 98, 98A, 98B and 98C (and their Appendices and Schedules) have been amended to take account of changes in fuel standards and to refer to the 2005 Amendment of the Air Navigation Order.

Minor editorial and textual changes convenient to be made at this time have been included, affecting Airworthiness Notices 3, 7, 11, 17, 21 (Appendix 2) and 46.

The following Airworthiness Notices have also been amended for the reasons given:

4	To revise a reference to BCAR A.
4 (Appendix 1)	To correct aircraft references to the Lycoming O-360-A2A Propeller.
6 (Appendix 3)	To correct the title of JAR-26 and refer to the amendment of CS-25.
7 (Appendices 1, 2, 3, 4 and 5)	To delete remarks which referred to transitional arrangements which no longer apply.
9	To update remarks which referred to transitional arrangements which no longer apply and to add information on Post-Maintenance Check Flights.
9 (Appendix 2)	To remove "Functionality/operational checks of previously approved modification" from the Purpose of Flight options.
10	To delete a list of aircraft which were required to have their maintenance accomplished and certified by Approved maintenance organisations, and to make other minor textual changes.
12	To correct the title of Appendix 67 and add Appendix 70.
14	To refer to the 2005 Amendment of the Air Navigation Order and add a section on the maintenance of components in non-EASA aircraft.
26 (Appendix 3)	To delete an aircraft type (ARV Super 2) for which the UK CAA no longer takes direct responsibility for continuing airworthiness in order to maintain the type certificated status.
28	To correct a reference to Airworthiness Notices 36 and 36A (both now cancelled), some of the text of which is now included in the Foreword to CAP 747.
29 (Appendices 1 and 2)	To update contact details for various CAA Departments.
46 (Appendix 1)	To change one of the locations for written Engineer Licensing Examinations.
52 (including Appendices and Schedule)	To ensure that European Union legislative changes do not weaken UK safety requirements.
74 (Appendix 2)	Reissued to correct the Issue number in the page footer.
78	To highlight changes in the Mandatory Occurrence Reporting Scheme.

September 2006 Amendment

The Contents Page has been updated from Issue 138 to Issue 139, including the amendment status of the appendices.

Airworthiness Notices 9, 11, 28, 29 (Appendix 1), 52, 52 (Schedule 1) and 71 have been amended to update references to CAA departments.

Airworthiness Notices 12 (Appendices 62, 65 and 66), 19 and 72 have been transferred to CAP 562 (Civil Aircraft Airworthiness Information and Procedures).

Airworthiness Notices 45 and 47 have been updated to refer to the 2005 Issue of the Air Navigation Order.

Minor editorial and textual changes convenient to be made at this time have been included, affecting Airworthiness Notices 7 (Appendix 3), 14, 16, 46 (Appendix 2) and 66.

To remove inconsistencies in page numbering, the words "Intentionally Left Blank" will be removed from blank backing pages as each AN is amended or re-issued. This is to prevent the blank page being included in the page count in the footer.

The following Airworthiness Notices have also been amended or added for the reasons given:

1	To delete information about complimentary copies of CAP 455.
3	To correct the date at which EASA legislation comes into force.
4 (Appendix 1)	To correct pitch references to the Gipsy Major 1C and 1H, Drawing No. DH5220/H.
6	To update information about CAA publications.
6 (Appendix 3)	To update references to various documents.
7	To update the EASA website address.
7 (Appendix 1)	To delete a table referring to transitional arrangements which no longer apply.
9 (Appendix 2)	To show revised Form.
12	To update Appendix 61 and to delete Appendices 62, 65 and 66.
12 (Appendix 61)	To change JAA references to EASA references.
13	To clarify that there is an exemption under the ANO that allows aircraft with an EASA Certificate of Airworthiness to perform State aircraft operations.
14 (Appendix 5)	Added to clarify what data is acceptable to Part 145 organisations.
17	To update the EASA website address.
21 (Appendix 2)	To harmonise with Appendix 2 of AN 9.
22	To update the status of CAP 474.
24	To update the course dates and course content for Airworthiness course.
26	To include references to EASA legislation.
26 (Appendix 2)	To include the Thruxton Jackaroo, since De Havilland Support is now responsible for continuing airworthiness in order to maintain the type certificated status.
26 (Appendix 3)	To delete the Thruxton Jackaroo, since the CAA is no longer responsible for continuing airworthiness in order to maintain the type certificated status.
29 (Appendix 2)	To update the address of the Luton Regional Office.
46	To include information about assessor training workshops.
46 (Appendix 1)	To give the dates for the Engineer Licensing Examinations in 2007.
48	To provide more complete guidance on the background to flight testing and check flights, both required and elective, and the associated procedures.
51	To remove references to EASA aircraft and to rewrite the AN in more general terms.



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29 September 2006

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Information Sheet No.1

to CAA Airworthiness Notices
28 September 2004

As a result of the coming into effect on 28 September 2004, of Part 21 Subpart H of European Commission Regulation (EC) No. 1701/2003, European Aviation Safety Agency (EASA) certificates of airworthiness will be issued which will not specify the category of operation. Under Part 21 an EASA aircraft will be issued with a "certificate of airworthiness", a "restricted certificate of airworthiness", or a "permit to fly". Consistent with this, from that date, the certificate issued by the CAA to a non-EASA aircraft will be a UK national "Standard Category certificate of airworthiness", "Special Category certificate of airworthiness", or "permit to fly".

Therefore, where within Airworthiness Notices the terms:

Transport Category (Passenger);
Transport Category (Cargo);
Aerial work Category; and
Private Category

are used the reader should replace those terms with:

Operated for the purposes of Public Transport (Passenger or Cargo);
Operated for the purposes of Aerial work; and
Operated for the purposes of Private flight

as appropriate.

NOTE: Public transport and Aerial work is defined in Article 130 of the AN (2000) as amended. Aircraft must be appropriately equipped and maintained commensurate to the type of operational use.

An aircraft with a certificate of airworthiness that is not "restricted" or "Special Category" may fly for the purposes of Public Transport, Aerial work or for Private use provided it is appropriately equipped and maintained.

Where the term 'Special Category' is used, this term remains unchanged. Operations by an EASA aircraft with a restricted certificate of airworthiness may be constrained by the limitations stated on the restricted certificate of airworthiness.

As each Airworthiness Notice is amended, the new terms will be progressively introduced into the body of the texts.

NOTE: The CAA interprets that the aircraft which are not the responsibility of EASA include:

- 1 those excluded from the EASA scope by Article 1 and Annex II of Regulation (EC) No. 1592/2002;
- 2 those for which an EASA Type Certification basis has not been established up until 28 March 2007;
- 3 those to which any derogation to national regulations applies under European Commission Regulation (EC) No. 1702/2003 "the Certification Regulation"; and
- 4 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.

AIRWORTHINESS NOTICE

**No. 1
Issue 20
29 September 2006**

Foreword

1 GENERAL

- 1.1 Airworthiness Notices are issued by the Civil Aviation Authority to circulate information to all concerned with the airworthiness of civil aircraft. Mandatory Airworthiness Notices that were previously published in CAP 455 have been transferred to CAP 747 – Mandatory Requirements for Airworthiness and are now published as Generic Requirements in Appendix 1. This document can be located via the CAA website at www.caa.co.uk/publications

2 ICAO COMPLIANCE STATEMENT TO CAP 455 AIRWORTHINESS NOTICES

- 2.1 It is the policy of the Civil Aviation Authority to exercise its various discretionary powers by reference to certain documents with a view to ensuring effective implementation of International Civil Aviation Organisation (ICAO) standards. In order to ensure that all these ICAO standards are reflected in UK aviation legislation, this ICAO compliance statement to Civil Aviation Publication (CAP) 455 is issued.
- 2.2 This document CAP 455 is published in support of the powers of the Civil Aviation Authority contained in Article 9(5) of the Air Navigation Order 2005 (as amended). The document includes international standards contained in Annexes to the Chicago Convention.
- 2.3 It is the policy of the Civil Aviation Authority to have reference to this document when exercising the discretionary powers referred to above and in particular it will normally exercise those powers so as to ensure effective implementation of any such international standards.

3 CONTENTS LIST AND CANCELLATIONS

- 3.1 The contents list is re-issued with each batch of Notices and gives particulars of all current Notices.
- 3.2 Cancellation of a Notice will be indicated in the contents list by the deletion of all details except for the number. The word Cancelled and the customary marginal line will be added. At the next issue of the contents list the number of the cancelled Notice will be removed.

4 ARRANGEMENT

- 4.1 Each Notice is identified by a number, followed by an issue number and an issue date. The Notice No. and Issue No. are listed in sequence in the contents list.
- 4.2 When a procedure, which has already been the subject of a Notice, is changed, the particular Notice is re-issued under the same number, but bearing a new issue number and issue date.
- 4.3 Material differences between issues are marked by marginal lines.

5 PUBLICATION AND DISTRIBUTION

- 5.1 Airworthiness Notices are published on the CAA web site at www.caa.co.uk under the heading "Publications".

5.2 Paper copies of Airworthiness Notices and a Standing Order service for amendments are available from the CAA's appointed printers, TSO (The Stationery Office). Contact details are contained in Airworthiness Notice No. 6 paragraph 2.

5.3 Details of many of the Airworthiness Publications published by the CAA and the address to which applications should be made are contained in Airworthiness Notice No. 6.

6 ENQUIRIES

Enquiries about the technical content of Airworthiness Notices should be addressed to the Rulemaking Section, Policy and Standards Department, Civil Aviation Authority, Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex RH6 0YR.

7 CANCELLATION

This Notice cancels Airworthiness Notice No. 1, Issue 19, dated 29 March 2006, which should be destroyed.

AIRWORTHINESS NOTICE**No. 3
Issue 21
29 September 2006****Licensed Aircraft Maintenance Personnel – Certification Responsibilities of
Type Rated/Authorised Personnel**

1 General The purpose of this Notice is to describe the certification responsibilities of UK Licensed Aircraft Maintenance Personnel. Such personnel may be the holder of an Aircraft Maintenance Engineer's Licence issued under BCAR Section L or an Aircraft Maintenance Licence issued under Part-66 (a JAR-66 aircraft maintenance licence is considered to be a Part-66 licence under Commission Regulation (EC) No. 2042/2003). The responsibilities apply when issuing certifications either as a Type Rated Licence holder or as an engineer holding a certification authorisation. It also describes the privileges of the various Type Rated Licences.

It should be noted that where the holder of a licence is performing maintenance activities on an aircraft on which he or she is not appropriately licensed, i.e. acting as a non-certifying engineer, they are still expected to act responsibly and carry out such work in accordance with the procedures and standards identified in the following paragraphs.

A National licence issued by the United Kingdom CAA does not confer any certification privileges with respect to aircraft which are not registered in the United Kingdom unless the licence holder is entitled to certify for such activities by way of having the licence validated by the relevant Airworthiness Authority and/or is authorised by a maintenance organisation approved by that Authority.

NOTE: (1) A BCAR Section L Licence Without Type Rating or a Part-66 Aircraft Maintenance Licence does not confer any certification privileges on the holder in their own right (except for that allowed under Part M.A. 801(d)2). Such licences must be used in conjunction with a certification authorisation.

NOTE: (2) In the context of this Notice, reference to an authorisation means an authorisation issued by an EASA or a CAA Approved Maintenance Organisation (under the requirements of BCARs or Part-145 or Part-M) to allow the holder to issue certifications within the limitations shown on the authorisation.

NOTE: (3) As of 28 September 2008 certification of maintenance on non-commercial transport aircraft using a Part-66 licence as authority is limited to items which are not included in the list at Part-M Appendix VII.

- 1.1
- (a) The Certificate referred to under Article 14 of the Air Navigation Order 2005 (as amended) is a Certificate of Maintenance Review to be issued following completion of the review required by the Order. The Certificate referred to under Article 16 of the Air Navigation Order 2005 (as amended) is a Certificate of Release to Service to be issued on completion of maintenance of aircraft or components not required to be maintained under Part-145 or Part-M (see also Airworthiness Notice No. 7 Appendix 2 for CAA UK Part-M implementation dates).
 - (b) The Certificate referred to in Part-145, paragraph 145.A.50 is a Certificate of Release to Service to be issued on completion of maintenance of aircraft or components which are required to be maintained under the provisions of Part-145.
 - (c) The certificate referred to in Part-M.A.801 is a Certificate of Release to Service to be issued on completion of maintenance of aircraft or components which are required to

be maintained under the provisions of Part-M (see Airworthiness Notice No. 7 Appendix 2 Paragraph 7 for implementation dates).

1.2 In connection with the issue of Certificates of Release to Service, the following definitions apply:

- (a) **Maintenance** means any one or combination of overhaul, repair, inspection, replacement, modification or defect rectification of an aircraft/aircraft component. EC No. 2042/2003 extends this definition to include 'with the exception of pre-flight inspection'.
- (b) **Overhaul** means the restoration of an aircraft/aircraft component by inspection and replacement in conformity with an approved standard to extend the operational life.
- (c) **Repair** means the restoration of an aircraft/aircraft component to a serviceable condition in conformity with an approved standard.
- (d) **Inspection** means the examination of an aircraft/aircraft component to establish conformity with an approved specification.
- (e) **Replacement** is any work operation which involves the removal and replacement of the same part or the substitution of an approved alternative part.
- (f) **Modification** means the alteration of an aircraft/aircraft component in conformity with an approved standard.

NOTE: (1) Defect rectification normally consists of an element of inspection and troubleshooting followed by repair and replacement of the defective item.

NOTE: (2) Inspection includes:

- (i) Mandatory Inspection, an inspection made Mandatory by EASA, where the inspection itself is the work (See CAP 747).
- (ii) Scheduled Maintenance Inspection, an inspection or maintenance including tests required by the Approved Maintenance Schedule or Programme.

1.3 Although many terms in common usage describe the various aspects of aircraft engineering, the meanings assigned to such terms are not always the same. For the purpose of this Notice, in relation to airworthiness, the following definitions apply:

- (a) **Condition** – the physical state of an item.
- (b) **Assembly** – that items are fitted, assembled, attached, installed, connected, secured or adjusted in the approved manner.
- (c) **Functioning** – operation in the approved manner achieving such performance, range of movement and freedom of movement as may be specified.

The certifying engineer shall be responsible for the condition, assembly and functioning of the aircraft or its components for maintenance that has been certified under the privileges of a Type Rated Licence or an authorisation.

1.4 The certifying engineer shall be responsible for ensuring that work is performed and recorded in a satisfactory manner taking into account the following:

- (a) Whenever work is carried out on an aircraft, it is the duty of all persons to whom this Notice applies to ensure that the work, for which they are responsible, progresses in a managed and controlled manner. Where they are supported by additional staff to carry out the work, consideration shall be given by them before starting the work to the manpower resource available and the abilities of the staff concerned. This is to ensure that the certifying engineer determines and exercises an adequate degree of supervision over such staff.
- (b) In relation to work carried out on an aircraft, it is the duty of all persons to whom this Notice applies to ensure that an adequate record of the work carried out is maintained. This is particularly important where such work carries on beyond a working period or shift, or is handed over from one person to another. The work accomplished, particularly if only disassembly or disturbance of components or aircraft systems, should be recorded as the work progresses or prior to undertaking a disassociated task. In any event, records should be completed no later than the end

of the work period or shift of the individual undertaking the work. Such records should include open entries to reflect the remaining actions necessary to restore the aircraft to a serviceable condition prior to release. In the case of complex tasks which are undertaken frequently, consideration should be given to the use of pre-planned stage sheets to assist in the control, management and recording of these tasks. Where such sheets are used, care must be taken to ensure that they accurately reflect the current requirements and recommendations of the manufacturer and that all key stages, inspections, or replacements are recorded.

- (c) It is also the duty of all persons to whom this Notice applies to consider the effect such work may have, directly or indirectly, on items which are the responsibility of other such persons. In all cases where an overlap of responsibility between licence categories occurs, the person primarily responsible for the item must involve all other trade disciplines affected. Every person to whom this Notice applies must therefore be conversant with all other relevant paragraphs of this Notice. Certificates of Release to Service for each relevant trade category must be issued by all persons concerned, each assuming responsibility of and certifying those aspects of the work for which the licence/authorisation holder is entitled to assume responsibility.

1.5 A Certificate of Release to Service shall only be issued on completion of maintenance when the signatory is (signatories are) satisfied that the work has been properly carried out and accurately recorded, having due regard to the use of:

- (a) up-to-date instructions and maintenance data (including manuals, drawings, specifications, EASA Airworthiness Directives and Mandatory Requirements listed in CAP 747, and, where applicable, company procedures).
- (b) recommended tooling and test equipment which is currently calibrated where applicable.
- (c) a working environment appropriate to the work being carried out.

When issuing a Certificate of Release to Service for work performed by others, the certifying engineer assumes responsibility. The certifying engineer must have inspected a sufficiently representative sample of the work and the associated documentation, and be satisfied with the competence of the persons who have performed the work. For complex tasks this may require progressive inspections to be carried out as the work proceeds. In the case of an aircraft or component where welding a metallic part is considered essential to airworthiness, it is the responsibility of the certifying engineer to establish that the welder is approved in accordance with the requirements in BCAR Section A sub-section A8 for aircraft maintained under national requirements.

For aircraft maintained under Part-M Subpart F or Part-145 it is the responsibility of the organisation to establish and control competencies in accordance with EC Regulation 2042/2003.

NOTE: Licensed engineers certifying under the privileges of their licence may not deviate from the manufacturer's maintenance instruction or maintenance data, nor use alternative parts, components or assemblies unless such deviation is supported by the written agreement of the manufacturer, approved as a change or agreed by the CAA. The local CAA Regional Office should be consulted in cases of difficulty. Authorised engineers shall comply with all company procedures covering such issues.

- 1.6 (a) When the work involves the assembly or any disturbance of a vital point defined in BCAR Section A, Chapter A5-3 or control system, the duplicate inspection required must be completed and certified in accordance with BCAR Section A/B Chapter A/B 6-2 before the relevant Certificate of Release to Service is issued.
- (b) Part-M.A.402(a) requires that an independent inspection shall be carried out after any flight safety sensitive maintenance task unless otherwise specified by Part-145 or agreed by the competent authority.
- (c) The holder of a Type Rated Licence in Category 'A' and/or 'C' or Part-66 Category B1 may make certification on aircraft (or their engines, as appropriate) below 5700 kg

MTWA for Duplicate Inspections of minor adjustments to control systems on other types within the Category in which the licence is type rated.

NOTE: A minor adjustment is considered to be a single point adjustment or reassembly of a control.

- 1.7 The holder of an appropriately Type Rated BCAR Section L Aircraft Maintenance Engineer's Licence in Categories 'A', 'B', 'C' or 'D', or the holder of an aircraft Type Authorisation equivalent to Section L Categories 'A' and/or 'C' or Part-66 Category B1, may issue a Certificate of Release to Service to cover Non Destructive Inspections on aircraft or components, within the privileges of the licence or authorisation held, subject to the work being carried out as follows:
- (a) Inspection requiring the use of Field Kit for the Colour Contrast Dye Penetrant technique may be carried out by persons either Type Rated or Type Authorised as above or persons qualified in accordance with Generic Requirement (GR) No. 23 in CAP 747.
 - (b) Non Destructive Inspections requiring any other technique, including Fluorescent Penetrant Dye, shall be carried out and signed for by persons appropriately qualified in accordance with Generic Requirement (GR) No. 23 in CAP 747 prior to the issue of the CRS by a licensed or authorised engineer.
- 1.8 Use of either a Type Rated Licence or an authorisation to issue a certification requires that, in addition to the Licence or Authorisation being valid at the time of certification, the holder has been engaged for periods totalling at least 6 months during the 24 months preceding the date of the certification on work affording experience comparable with that required for the grant of the Licence/Authorisation.
- 1.9 A Type Rated Licensed Engineer may issue the Certificates identified below in relation to aircraft for which the licence is Type Rated and in accordance with the privileges detailed in the remaining paragraphs to this Notice. An authorised engineer may only issue these certificates as permitted within the limits of the authorisation.
- (a) Certificate of Release to Service for aircraft not required to be maintained under Part-M Subpart F or Part-145 – the holder of an appropriately Type Rated Licence may issue Certificates of Release to Service subject to compliance with the requirements of BCAR Section A/B, Chapter A/B6-2 and A/B6-7.
 - (b) Certificate of Maintenance Review – the holder of an appropriately Type Rated Licence in at least two Categories (other than Category 'X' Compasses) may issue a Certificate of Maintenance Review subject to compliance with the requirements of BCAR Section A/B, Chapter A/B6-2 and A/B6-7 and the Maintenance Schedule Approval Document.
 - (c) Certificates of Fitness for Flight – the holder of an appropriately Type Rated Licence may issue Certificates of Fitness for Flight subject to compliance with the requirements of BCAR Section A/B, Chapter A/B3-8.
 - (d) Flight Release certificate - for aircraft not required to be maintained under Part-145. The holder of a valid and appropriately type rated aircraft maintenance engineer's licence granted under BCAR Section L or the holder of a Part-66 licence appropriately endorsed for the aircraft type rendered valid in the United Kingdom, may issue a Flight Release certificate under the terms of an EASA Permit to Fly.
- NOTE:** For aircraft listed in Paragraph 14 of Airworthiness Notice No. 10 certificates shall only be issued by appropriately authorised engineers.
- 1.10 The following licence categories may be used to allow the grant of an authorisation within a Maintenance Organisation approved in accordance with EASA or CAA requirements:
- A BCAR Section L LWTR (Licence Without Type Rating) providing that the authorisation issued is within the scope of the licence held at 1st June 2001.
 - A BCAR Section L LWTR extended with the appropriate Type Rating.
 - A Part-66 Category A licence providing that the authorisation issued is in compliance with AMC 145.A.30(g).

- A Part-66 Category B licence providing that the licence has been extended with the appropriate type rating. No authorisation permitted against the basic Part-66 licence.
- A Part-66 Category C licence providing that the licence has been extended with the appropriate type rating. No authorisation permitted against the basic Part-66 licence.

In addition to the foregoing paragraphs, when working within such Organisations, the licensed engineer should be aware that he/she is part of a comprehensive maintenance system. It is therefore important to realise that company procedures may further define, or require specific actions, as to how certain issues are to be dealt with and these procedures must be adhered to. It is also important to realise that when working within an approved Maintenance Organisation and certifying under the privileges of an authorisation the licensed engineer is not certifying under the privileges of the licence.

NOTE: UK licence holders may work for and therefore be authorised to certify by Maintenance Organisations which are not CAA approved. In such cases, validation of a UK issued BCAR Section L licence or Part-66 licence may be required. In addition, the holder of a licence may be required to satisfy specific company requirements for authorisation. Such requirements may also introduce additional National legislation and working practices which the licence holder should note and comply with. Whilst certifying under such authorisations and in the absence of specific guidance the principles and practices promulgated in this Notice should be adhered to.

2 **BCAR SECTION L AIRCRAFT MAINTENANCE ENGINEER'S LICENCE – TYPE RATED IN CATEGORY 'A' – AEROPLANES**

NOTE: (1) With the exception of certification of aircraft excluded from the requirements of EC Regulation 1592/2002 (Annex II and state aircraft as defined in article 1(2) thereof), all persons issuing Certificates of Release to Service on aircraft below 5700kg must comply with the provisions of EC Regulation 2042/2003 Article 7(d) by way of derogation until 28 September 2008. (See Airworthiness Notice No. 7 Appendix 1 paragraph 4.) For information on conversion requirements refer to the ELGD booklet or visit our website at www.srg.caa.co.uk

NOTE: (2) This paragraph must be read in conjunction with paragraph 1 of this Notice.

- 2.1 The holder of a BCAR Section L Category 'A' licence may issue Certificates of Release to Service in respect of maintenance in relation to non-commercial air transport aeroplanes (but not including engines) for which the licence is Type Rated.
- 2.2 In connection with the certification of maintenance the holder of a Type Rated Licence in Category 'A' is responsible for all parts of the aeroplane subject to the limitations detailed below (excluding those parts which are the responsibility of the holder of a Type Rated Licence in Category 'C').
- 2.3 The holder of a Type Rated Licence in Category 'A' may issue Certificates of Release to Service relating to maintenance (excluding overhaul) of parts of the aeroplane for which the holder is responsible, providing that the work has not involved any of the following:
- Bolted joints requiring special techniques.
 - Complete riveted joints in primary structures.
 - Complete glued joints in primary structures.
 - Bonded assemblies in primary structures.
 - Composite material primary structures.
 - Welded and brazed joints, other than minor weld repairs carried out by an Approved Welder, but excluding replacement of structural members or repairs to flying control components.
 - Cotton, linen, polyester and glass fibre fabric covering of a complete fuselage or aerofoil.
 - The disturbing of individual parts of units which are supplied as bench tested units, except for the replacement or adjustment of items normally replaceable or adjustable in service.
- 2.4 In connection with the maintenance of instrument, electrical, automatic pilot and radio systems installed in aeroplanes (excluding overhaul or such systems as are associated with

the engine(s) and auxiliary power unit(s)) the holder of a Type Rated Licence in Category 'A' is entitled to issue Certificates of Release to Service for aircraft for which he holds a Type Rating, subject to the limitations detailed in sub-paragraphs 2.4.1, 2.4.2, 2.4.3, 2.4.4 and 2.4.5.

NOTE: Where no limitations are shown, Certificates of Release to Service may be issued for repair, replacement, modification, mandatory inspection or scheduled maintenance inspection. In respect of the certification of scheduled maintenance inspections, reference should also be made to the Maintenance Schedule Approval Document which may require certification specifically by an engineer licensed in the appropriate 'X' or 'R' Category. However, in the absence of such a requirement, the holder of a Type Rated Licence in Category 'A' Aeroplanes assumes the responsibility for establishing compliance with the maintenance schedule requirements on the systems before issuing the Certificate of Release to Service.

- 2.4.1 In respect of instrument systems in the aeroplane (excluding instrument systems associated with the engine(s) and auxiliary power unit(s)):
- If the aeroplane has an instrument system specified in sub-paragraph 8.1 of Airworthiness Notice No. 10, Certificates of Release to Service may be issued.
 - If the aeroplane has an instrument system specified in sub-paragraphs 8.2 to 8.4 inclusive of Airworthiness Notice No. 10, Certificates of Release to Service may be issued relating to replacements only, provided that functioning checks to prove serviceability do not require the use of test apparatus.
 - If the aeroplane is specified in paragraph 10 of Airworthiness Notice No. 10, Certificates of Release to Service may not be issued.
- 2.4.2 In respect of electrical systems in the aeroplane (excluding electrical systems associated with the engine(s) and auxiliary power unit(s)):
- If the aeroplane has an electrical system specified in sub-paragraph 9.1 of Airworthiness Notice No. 10, Certificates of Release to Service may be issued.
 - If the aeroplane has an electrical system specified in sub-paragraphs 9.2 to 9.4 inclusive of Airworthiness Notice No. 10, Certificates of Release to Service may be issued relating to replacements only, provided that functioning checks to prove serviceability do not require the use of test apparatus.
 - If the aeroplane is specified in paragraph 10 of Airworthiness Notice No. 10, Certificates of Release to Service may not be issued.
- 2.4.3 In respect of automatic pilot systems in the aeroplane:
- If the aeroplane has an automatic pilot system specified in sub-paragraph 13.1 of Airworthiness Notice No. 10 installed, Certificates of Release to Service may be issued.
 - If the aeroplane has an automatic pilot system specified in sub-paragraph 13.2 of Airworthiness Notice No. 10 installed, Certificates of Release to Service may be issued relating to replacements only, provided that functioning checks to prove serviceability do not require the use of test apparatus.
 - If the aeroplane has an automatic pilot system as specified in sub-paragraph 13.3 or the aeroplane is specified in paragraph 10 of Airworthiness Notice No. 10, Certificates of Release to Service may not be issued.
- 2.4.4 Certificates of Release to Service may not be issued in respect of radio systems, except that if the aeroplane has a MTWA not exceeding 2730 kg, certificates may be issued in respect of the replacement of VHF communication equipment only.
- 2.4.5 Certificates of Release to Service may not be issued in respect of compass compensation and adjustment unless the licence is endorsed to that effect.

3 BCAR SECTION L AIRCRAFT MAINTENANCE ENGINEER'S LICENCE – TYPE RATED IN CATEGORY 'B' –AEROPLANES OR ROTORCRAFT

NOTE: This paragraph must be read in conjunction with paragraph 1 of this Notice.

3.1 The holder of a Section L Category 'B' licence may issue Certificates of Release to Service in respect of overhaul, repair, replacement, modification and mandatory inspection in relation to non-commercial air transport aeroplanes or rotorcraft (but not including engines) for which the licence is Type Rated, subject to the limitations of sub-paragraphs 3.2 and 3.3.

3.2 **Category 'B' – Aeroplanes**

3.2.1 In connection with the certification of overhaul, repair, replacement, modification and mandatory inspection, the holder of a Type Rated Licence in Category 'B' – Aeroplanes is responsible for all parts of the aeroplane (provided that the work does not involve the manufacturing of components or parts) excluding those parts which are the responsibility of the holder of a Type Rated Licence in Category 'C' or 'D' and subject to the same limitations as detailed in sub-paragraph 2.4 for Category 'A' and excluding the overhaul of electrical, instrument or automatic pilot systems.

3.2.2 Notwithstanding the above the holder of a Type Rated Licence in Category 'B' may also issue Certificates of Release to Service relating to all aspects of overhaul, repair, replacement, modification and mandatory inspection relating to items listed as (a) to (e) below, except for those parts which form part of or are attached to the engine, provided that the work does not involve the making of components or parts.

- (a) Engine mounting structures and cowlings
- (b) Engine controls
- (c) Engine fuel, oil and coolant systems
- (d) Engine fire extinguishing systems
- (e) Engine fluid de-icing systems

3.3 **Category 'B' – Rotorcraft**

3.3.1 In connection with the certification of overhaul, repair, replacement, modification and mandatory inspection the holder of a Type Rated Licence in Category 'B' – Rotorcraft is responsible for all parts of the rotorcraft (provided that the work does not involve the making of components or parts) excluding those parts which are the responsibility of the holder of a Type Rated Licence in Category 'D' and subject to the same limitations as detailed in sub-paragraph 6.5 for Category 'A' and 'C' Rotorcraft excluding the overhaul of electrical, instrument, automatic pilot systems, main and tail rotor blades.

4 BCAR SECTION L AIRCRAFT MAINTENANCE ENGINEER'S LICENCE – TYPE RATED IN CATEGORY 'C' – ENGINES

NOTE: This paragraph must be read in conjunction with paragraph 1 of this Notice.

4.1 The holder of a Section L Category 'C' licence may issue Certificates of Release to Service in respect of maintenance in relation to non-commercial air transport engines and auxiliary power units for which the licence is Type Rated.

4.2 In connection with the certification of maintenance (excluding overhaul) the holder of a Type Rated Licence in Category 'C' is responsible for all parts of the engine(s), the engine installation(s), auxiliary power unit(s), other propulsive device(s) and all associated systems and devices which are concerned with their operation, subject to the limitations detailed in sub-paragraphs 4.3, 4.4, 4.5 and 4.6 (excluding those parts which are the responsibility of the holder of a Type Rated Licence in Category 'D').

4.3 The holder of a Type Rated Licence in Category 'C' may issue Certificates of Release to Service relating to maintenance (excluding overhaul) of components or parts for which the holder is responsible, providing that the work has not involved:

- (a) Dismantling of a piston engine other than to obtain access to the piston/cylinder assemblies or the removal of the engine rear accessory cover to inspect and/or replace oil pump assemblies where such work does not involve the removal and refitment of internal gears.

- (b) Dismantling of main casings or main rotating assemblies of a turbine engine, except as detailed in sub-paragraph 4.4.
- (c) The removal or dismantling of reduction gears, except that, in the case of the BS (DH) Gipsy Queen 70 engine, reduction gears may be removed for the purpose of carrying out inspections after suspected shock loadings.
- (d) Propeller balancing, except for the certification of static balancing where required by the maintenance manual and dynamic balancing on installed propellers using electronic balancing equipment where permitted by the maintenance manual or other approved airworthiness data. The work itself may have been carried out by an LAE who has received suitable training on the balancing equipment to be used and the associated procedures, or by an organisation approved for that purpose and which has issued an Approved Test Certificate for the inspection.
- (e) Welded and brazed joints, other than minor weld repairs to exhaust units carried out by an Approved Welder but excluding component replacement.
- (f) The disturbing of individual parts of units which are supplied as bench tested units, except for the replacement or adjustment of items normally replaceable or adjustable in service.

4.4 Where the maintenance manual for the particular engine provides instruction for the task, replacement of main casings and/or rotating assemblies comprising the whole or part of a particular rotating system will be permitted provided that removal from the engine is achieved solely by disconnecting the flanges of main casings. In accordance with the above principles, some engines have been assigned the following symbols, ⊙ or ▲ in Airworthiness Notice No. 10. Dismantling of these engines is permissible, but is limited to:

- (a) ⊙ – Removal/replacement of main casings, **excluding** those whose removal results in concurrent removal of a rotating assembly from the engine. No dismantling of main rotating assemblies is permitted.
- (b) ▲ – Removal/replacement of main casings **including** those whose removal results in concurrent removal of a rotating assembly from the engine, **provided this is accomplished solely by disconnecting at the casing flanges**. No dismantling of main rotating assemblies is permitted.

4.5 In connection with the maintenance of instrument, electrical and automatic pilot systems installed in aeroplanes, the holder of a Type Rated Licence in Category 'C' is entitled to issue Certificates of Release to Service in respect of such systems associated with engine and auxiliary power unit installations for which the holder has a Type Rating, subject to the limitations detailed in sub-paragraphs 4.5.1, 4.5.2 and 4.5.3.

NOTE: Where no limitations are shown, Certificates of Release to Service may be issued for replacement, modification, repair, mandatory inspection or scheduled maintenance inspection. In respect of the certification of scheduled maintenance inspections reference should also be made to the Maintenance Schedule Approval Document which may require certification specifically by an engineer licensed in the appropriate 'X' Category. However, in the absence of such a requirement, the holder of a Type Rated Licence in Category 'C' – Engines assumes the responsibility for establishing compliance with the maintenance schedule requirements on the systems before issuing the Certificate of Release to Service.

4.5.1 In respect of instrument systems associated with the engine(s) and auxiliary power unit(s):

- (a) If the engine is installed in an aeroplane which has an instrument system specified in sub-paragraph 8.1 of Airworthiness Notice No. 10, Certificates of Release to Service may be issued.
- (b) If the engine is installed in an aeroplane which has an instrument system specified in sub-paragraphs 8.2 to 8.4 inclusive of Airworthiness Notice No. 10, Certificates of Release to Service may be issued relating to replacements only, provided that functioning checks to prove serviceability do not require the use of test apparatus.
- (c) If the engine is installed in an aeroplane specified in paragraph 10 of Airworthiness Notice No. 10, Certificates of Release to Service may not be issued.

- 4.5.2 In respect of electrical systems associated with the engine(s) and auxiliary power unit(s):
- (a) If the engine is installed in an aeroplane which has an electrical system specified in sub-paragraph 9.1 of Airworthiness Notice No. 10, Certificates of Release to Service may be issued.
 - (b) If the engine is installed in an aeroplane which has an electrical system specified in sub-paragraphs 9.2 to 9.4 inclusive of Airworthiness Notice No. 10, Certificates of Release to Service may be issued relating to replacements only, provided that functioning checks to prove serviceability do not require the use of test apparatus.
 - (c) If the engine is installed in an aeroplane specified in paragraph 10 of Airworthiness Notice No. 10, Certificates of Release to Service may not be issued.
- 4.5.3 In respect of automatic pilot systems associated with the engine(s):
- (a) If the aeroplane has an automatic pilot system specified in sub-paragraph 13.1 of Airworthiness Notice No. 10 installed, Certificates of Release to Service may be issued.
 - (b) If the aeroplane has an automatic pilot system specified in sub-paragraph 13.2 of Airworthiness Notice No. 10 installed, Certificates of Release to Service may be issued relating to replacements only, provided that functioning checks to prove serviceability do not require the use of test apparatus.
 - (c) If the aeroplane has an automatic pilot system as specified in sub-paragraph 13.3 or is specified in paragraph 10 of Airworthiness Notice No. 10, Certificates of Release to Service may not be issued.

5 BCAR SECTION L AIRCRAFT MAINTENANCE ENGINEER'S LICENCE – TYPE RATED IN CATEGORY 'D' – ENGINES

NOTE: This paragraph must be read in conjunction with paragraph 1 of this Notice.

- 5.1 The holder of a Section L Category 'D' Licence may issue Certificates of Release to Service in respect of non-commercial air transport engines for which the Licence is Type Rated in respect of overhaul, repairs, replacements, modification and mandatory inspection, subject to the limitations of sub-paragraphs 5.2 and 5.3.
- 5.2 In connection with overhaul, repair, replacement, modification and mandatory inspection, the holder of a Type Rated Licence in Category 'D' is responsible for all parts of the engine including functioning only insofar as test bed performance is concerned. The certification of functioning insofar as an installed engine is concerned must be made in conjunction with a holder of a Type Rated Licence in Category 'C'.
- 5.3 The holder of a Category 'D' Licence may issue Certificates of Release to Service relating to all aspects of overhaul, repair, replacement, modification and mandatory inspection of components and parts of the engine only (excluding overhaul, repair, replacement, modification and mandatory inspection of ignition apparatus, instrument equipment and electrical equipment) provided that the work does not involve the making of components or parts.

Commission Regulation (EC) 2042/2003 does not provide provision for aircraft overhaul licenses therefore; BCAR Section L category B and D licenses do not transfer to a Part-66 category B1 AML. The UK CAA is currently considering the continuance and issue of National overhaul licenses for certification purposes on Commission Regulation (EC) 1592/2002 Annex II aircraft types.

Although still under consideration, it is likely that **new** applicants for a National licence for airframe overhaul work (BCAR Section L category B) will initially be required to meet the criteria for a Part-66 AML.

6 BCAR SECTION L AIRCRAFT MAINTENANCE ENGINEER'S LICENCE – TYPE RATED IN CATEGORIES 'A' AND 'C' – ROTORCRAFT

NOTE: (1) This paragraph must be read in conjunction with paragraph 1 of this Notice.

NOTE: (2) A Category 'A' and 'C' Rotorcraft Licence may not be used to certify for piston or jet turbine engines installed in aeroplanes.

- 6.1 The holder of a Section L Categories 'A' and 'C' Rotorcraft Licence may issue Certificates of Release to Service in respect of maintenance in relation to non-commercial air transport rotorcraft and its engines for which the licence is Type Rated.
- 6.2 In connection with the certification of maintenance the holder of a Type Rated Licence in Categories 'A' and 'C' Rotorcraft is responsible for all parts of the rotorcraft subject to the limitations detailed in sub-paragraphs 6.3, 6.4 and 6.5.
- 6.3 The holder of a Type Rated Licence in Category 'A' and 'C' Rotorcraft may issue Certificates of Release to Service relating to maintenance (excluding overhaul) of parts of the rotorcraft for which the holder is responsible, providing that the work has not involved any of the following:
- (a) Bolted joints requiring special techniques.
 - (b) Complete riveted joints in primary structures.
 - (c) Complete glued joints in primary structures.
 - (d) Bonded assemblies in primary structures.
 - (e) Composite material primary structures.
 - (f) Welded and brazed joints, other than minor weld repairs to aircraft structure or exhaust units carried out by an Approved Welder but excluding structural or component replacement.
 - (g) Dismantling of a piston engine other than to obtain access to the piston/cylinder assemblies or the removal of the engine rear accessory case cover to inspect and/or replace oil pump assemblies where such work does not involve the removal and refitment of internal gears.
 - (h) Dismantling of main casings or main rotating assemblies of a turbine engine, except as detailed in sub-paragraph 6.4.
 - (i) Dismantling of gearbox casings, except that separation of casings to obtain access for the purposes of internal inspections in accordance with the manufacturer's instruction is permitted.
 - (j) The disturbing of individual parts of units which are supplied as bench tested units, except for the replacement or adjustment of items normally replaceable or adjustable in service.
- 6.4 Where the maintenance manual for the particular engine provides instruction for the task, replacement of main casings and/or rotating assemblies comprising the whole or part of a particular rotating system will be permitted provided that removal from the engine is achieved solely by disconnecting the flanges of main casings. In accordance with the above principles, some engines have been assigned the following symbols, ⊙ or ▲ in Airworthiness Notice No. 10. Dismantling of these engines is permissible, but is limited to:
- (a) ⊙ – Removal/replacement of main casings, **excluding** those whose removal results in concurrent removal of a rotating assembly from the engine. No dismantling of main rotating assemblies is permitted.
 - (b) ▲ – Removal/replacement of main casings **including** those whose removal results in concurrent removal of a rotating assembly from the engine, **provided this is accomplished solely by disconnecting at the casing flanges**. No dismantling of main rotating assemblies is permitted.
- 6.5 In connection with the maintenance of instrument, electrical, automatic pilot and radio systems installed in rotorcraft (excluding overhaul) the holder of a Type Rated Licence in Categories 'A' and 'C' Rotorcraft is entitled to issue Certificates of Release to Service for rotorcraft for which he holds a Type Rating, subject to the limitations detailed in sub-paragraphs 6.5.1, 6.5.2, 6.5.3 and 6.5.4.

NOTE: Where no limitations are shown, Certificates of Release to Service may be issued for replacement, modification, repair, mandatory inspection or scheduled maintenance inspection. In

respect of the certification of scheduled maintenance inspections, reference should also be made to the Maintenance Schedule Approval Document which may require certification specifically by an engineer licensed in the appropriate 'X' or 'R' Category. However, in the absence of such a requirement, the holder of a Type Rated Licence in Categories 'A' and 'C' Rotorcraft assumes the responsibility for establishing compliance with the maintenance schedule requirements on the systems before issuing the Certificate of Release to Service.

- 6.5.1 In respect of instrument systems in the rotorcraft if the rotorcraft is specified in sub-paragraph 7.4 of Airworthiness Notice No. 10, Certificates of Release to Service may be issued relating to replacements only, provided that functioning checks to prove serviceability do not require the use of test apparatus.
- 6.5.2 In respect of electrical systems in the rotorcraft, if the rotorcraft is specified in sub-paragraph 7.4 of Airworthiness Notice No. 10, Certificates of Release to Service may be issued relating to replacements only, provided that functioning checks to prove serviceability do not require the use of test apparatus.
- 6.5.3 In respect of automatic pilot/automatic stabiliser systems in rotorcraft, if the rotorcraft has an automatic pilot/automatic stabiliser system specified in sub-paragraph 13.4 or 13.5 of Airworthiness Notice No. 10 installed, Certificates of Release to Service may be issued relating to replacements only, provided that functioning checks to prove serviceability do not require the use of test apparatus.
- 6.5.4 Certificates of Release to Service may not be issued in respect of radio systems, except that if the rotorcraft has a MTWA not exceeding 2730 kg, certificates may be issued in respect of the replacement of VHF communication equipment only.

7 BCAR SECTION L AIRCRAFT MAINTENANCE ENGINEER'S LICENCE – TYPE RATED IN CATEGORY 'X' – INSTRUMENTS

NOTE: This paragraph must be read in conjunction with paragraph 1 of this Notice and particular attention paid to sub-paragraphs 1.3, 1.4, 1.5 and 1.6 which are concerned with areas of responsibility.

- 7.1 The holder of a Section L Category 'X' – Instruments Licence may issue Certificates of Release to Service in respect of maintenance in relation to non-commercial air transport aircraft instrument systems for which the licence is Type Rated, subject to the limitations detailed in sub-paragraph 7.3.
- 7.2 In connection with the certification of maintenance, excluding overhaul, the holder of a Type Rated Licence in Category 'X' – Instruments is responsible for all parts of instrument systems included in the Type Rating.
- 7.3 The holder of a Type Rated Licence in Category 'X' – Instruments may issue Certificates of Release to Service in respect of maintenance, excluding overhaul, of components and parts for which the holder is responsible provided that units which are supplied as bench tested units may not have their individual parts disturbed, except for the replacement or adjustment of items normally replaceable or adjustable in service.

8 BCAR SECTION L AIRCRAFT MAINTENANCE ENGINEER'S LICENCE – TYPE RATED IN CATEGORY 'X' – ELECTRICAL

NOTE: This paragraph must be read in conjunction with paragraph 1 of this Notice.

- 8.1 The holder of a Section L Category 'X' – Electrical Licence may issue Certificates of Release to Service in respect of maintenance in relation to non-commercial air transport aircraft electrical systems for which the licence is Type Rated, subject to the limitations detailed in sub-paragraph 8.3.
- 8.2 In connection with the certification of maintenance, excluding overhaul, the holder of a Type Rated Licence in Category 'X' – Electrical is responsible for all parts of electrical systems included in the Type Rating.
- 8.3 The holder of a Type Rated Licence in Category 'X' – Electrical may issue Certificates of Release to Service in respect of maintenance, excluding overhaul, of components and parts for which the holder is responsible provided that units which are supplied as bench

tested units may not have their individual parts disturbed, except for the replacement or adjustment of items normally replaceable or adjustable in service.

9 BCAR SECTION L AIRCRAFT MAINTENANCE ENGINEER'S LICENCE – TYPE RATED IN CATEGORY 'X' – AUTOMATIC PILOTS

NOTE: (1) This paragraph must be read in conjunction with paragraph 1 of this Notice.

NOTE: (2) For the purpose of certification, automatic stabilisation systems are deemed to be automatic pilots.

NOTE: (3) Automatic pilots include related systems such as yaw and or roll dampers, mach trim systems, and automatic throttles.

9.1 The holder of a Section L Category 'X' – Automatic Pilots Licence may issue Certificates of Release to Service in respect of maintenance in relation to non-commercial air transport aircraft automatic pilot systems for which the licence is Type Rated, subject to the limitations detailed in sub-paragraph 9.3.

9.2 In connection with the certification of maintenance, excluding overhaul, the holder of a Type Rated Licence in Category 'X' – Automatic Pilots is responsible for all parts of the automatic pilot systems included in the Type Rating.

9.3 The holder of a Type Rated Licence in Category 'X' – Automatic Pilots may issue Certificates of Release to Service in respect of maintenance, excluding overhaul, of components and parts for which the holder is responsible provided that units which are supplied as bench tested units may not have their individual parts disturbed, except for the replacement or adjustment of items normally replaceable or adjustable in service.

10 BCAR SECTION L AIRCRAFT MAINTENANCE ENGINEER'S LICENCE – TYPE RATED IN COMBINED CATEGORIES 'X' – INSTRUMENT/AUTOMATIC PILOTS

The Type Rated Licence in Combined Categories 'X' – Instrument/Automatic pilots is comprised of two 'X' Category ratings and the provisions and limitations contained in both paragraphs 7 and 9 of this Notice apply in relation to the Instrument and Automatic Pilot systems installed in any aircraft for which the Combined Categories 'X' Licence is type rated.

11 BCAR SECTION L AIRCRAFT MAINTENANCE ENGINEER'S LICENCE – TYPE RATED IN CATEGORY 'R' – RADIO

NOTE: This paragraph must be read in conjunction with paragraph 1 of this Notice.

11.1 The holder of a Section L Category 'R' – Radio Licence may issue Certificates of Release to Service in respect of maintenance in relation to non-commercial air transport aircraft radio systems for which the licence is Type Rated, subject to the limitations detailed in sub-paragraph 11.3.

11.2 In connection with the certification of maintenance, excluding overhaul, the holder of a Type Rated Licence in Category 'R' – Radio is responsible for all parts of the radio systems included in the Type Rating.

11.3 The holder of a Type Rated Licence in Category 'R' – Radio may issue Certificates of Release to Service in respect of maintenance, excluding overhaul, of components and parts for which the holder is responsible provided that units which are supplied as bench tested units may not have their individual parts disturbed, except for the replacement or adjustment of items normally replaceable or adjustable in service.

11.4 The holder of a Type Rated Licence in Category 'R' – Radio, endorsed to include the overhaul of radio apparatus, is responsible for and may issue Certificates of Release to Service in respect of the maintenance of components and parts of all radio apparatus undergoing periodic check, repair or overhaul in workshop for which the Licence is Type Rated, provided that the work done does not involve the making of radio components or parts.

- 11.5 The holder of a Type Rated Licence in Category 'R' – Radio endorsed including GPWS may issue Certificates of Release to Service in respect of maintenance, excluding overhaul or scheduled maintenance inspection, of Ground Proximity Warning Systems for aircraft for which the licence is Type Rated in respect of its radio systems, subject to the limitations of sub-paragraph 11.3.

12 **COMPASS COMPENSATION AND ADJUSTMENT.**

The Paragraph 15 type rating of Airworthiness Notice No. 10 permits the issue of Certificates of Release to Service by the holder in respect of the compensation and adjustment of direct and remote reading compasses on any aircraft.

13 **PART-66 CATEGORY A AIRCRAFT MAINTENANCE LICENCE**

NOTE: A JAR-66 licence is deemed to be compliant with Part-66 and therefore certification privileges held under JAR-66 may continue to be exercised. Existing JAR-66 licences held will be automatically converted to a Part-66 licence at the next licensing event. It is not necessary for JAR-66 licence holders to convert to Part-66.

- 13.1 A Part-66 Category A Aircraft Maintenance Licence (AML) may be issued to a person who has demonstrated a competence to complete minor scheduled line maintenance and simple defect rectification. The licence does not entitle the holder to exercise any certification privileges in respect of aircraft unless and until the holder is issued with a corresponding Certification Authorisation. Such authorisations will be issued by a Part-145 maintenance organisation appropriately approved by the Competent Authority of a European Union Member State (EU Competent Authority) or EASA. This means that the Part-66 Aircraft Maintenance Licence issued by the UK CAA can readily be used as the basis for a certification authorisation throughout European Union Member States.

NOTE: (1) It should be noted that a Part-66 licence may not provide for full equivalence in another Member State to certify for work relating to any National legislation which sits outside of Part-145. Additional language requirements may also apply.

NOTE: (2) The holder of an unrestricted Category B1 licence is also qualified as a Category A licence holder in the same sub-category, e.g. Aeroplanes Turbine, and may be issued with Category A certification authorisation.

- 13.2 These Category A privileges will be limited to the performance and certification of specific simple maintenance tasks, either individually or in combination, as defined in Part 145 AMC 145.A.30 (g) and will require a combination of theoretical and practical training to be undertaken on each aircraft type to qualify for the task authorisation. Such authorisation, issued by an Approved Part-145 Maintenance Organisation will specify the limitations of the privileges that may be applicable. Licence holders will therefore be required to act in accordance with the authorisation procedures of the company concerned.

14 **PART-66 CATEGORY B1 AIRCRAFT MAINTENANCE LICENCE**

- 14.1 A Part-66 Category B1 Aircraft Maintenance Licence (AML) may be issued to a person who has demonstrated a competence to complete maintenance, including aircraft structure, powerplant and mechanical and electrical systems. Replacement of avionic line replaceable units, requiring simple tests to prove their serviceability, shall also be included in the privileges.. The Category B1 licence is primarily intended to be used for the purposes of qualification of line maintenance staff for authorisation. The licence, in its own right, does not entitle the holder to exercise any certifying privileges in respect of aircraft and will be used in conjunction with a Part-145 or Part-M subpart F certification authorisation.

- 14.2 Such authorisations will be issued by a Part-145 or Part-M subpart F maintenance organisation appropriately approved by the competent Authority of a European Union member state or EASA. This means that the Part-66 Aircraft Maintenance Licence issued by the UK CAA can readily be used as the basis for a certification authorisation throughout the European Union member states. Part 145.A.30 (h) also requires it to be used as a prerequisite for authorisation of staff acting as inspectors or supervisors within base

maintenance. Licence holders will therefore act in accordance with the authorisation procedures of the company concerned.

NOTE: It should be noted that a Part-66 licence may not provide for full equivalence in another EU Member State to certify for work relating to any National legislation which sits outside of Part-145. Additional language requirements may also apply.

14.3 Category B1 licences apply to aircraft (aeroplanes and helicopters) and are issued in licence sub-categories which are:

B1.1 Aeroplanes Turbine

B1.2 Aeroplanes Piston

B1.3 Helicopters Turbine

B1.4 Helicopters Piston

NOTE: An unrestricted B1 sub-category entitles the holder to be granted Category A certification authorisations in the same sub-category, e.g. Aeroplanes Turbine.

14.4 Category B1 certification authorisations allow the holder to issue Certificates of Release to Service under Part 145 or Part-M subpart F for line maintenance on aircraft which are endorsed as individual types on the licence and the corresponding authorisation. Category B1 licences to the full Part-66 standard include scope to allow the issue of a certification authorisation covering work on a combination of the following disciplines:

- airframe and their related systems;
- engines and their related systems (including Auxiliary Power Units);
- electrical power generation and distribution systems (power distribution in respect of airframe and/or engine systems) including lighting systems;
- avionic line replaceable units (LRU).

In respect of avionic LRUs, the work is limited to cases where the serviceability of the system can be established by a simple self test facility (BITE) or by using simple test equipment and it is expected that, for reference purposes, a list of such components will be prepared for each aircraft type by the Part-145 or Part-M subpart F approved organisation. (Defect rectification on avionic systems which requires an element of decision making in its application other than a simple go/no go decision cannot be certified).

NOTE: The Category B1 licence holder is not entitled to certify for any overhaul work.

14.5 The certification authorisation can only be issued by a Part-145 or Part-M subpart F organisation when the licence holder has the appropriate basic sub-category listed and the aircraft type rating endorsed on the Part-66 Aircraft Maintenance Licence. The type training for a Category B1 type endorsement, conducted under a Part-147 approval, will represent the appropriate technologies as specified in Part-66. The certification authorisation will specify the privileges for the individual, giving due regard to the company scope of approval and any associated procedures agreed with the Competent Authority, and will specify any limitations to the authorisation accordingly.

NOTE: (1) As of 28 September 2008 a Certificate of Release to Service may be issued for maintenance on a non-large aircraft, not operating as commercial air transport, based on a Part-66 licence extended with the appropriate type rating in accordance with Part-M. This maintenance is limited to items not included in the list at Part-M Appendix VII.

NOTE: (2) A Part-66 licence issued on the basis of protected rights may contain technical restrictions equivalent to the limitations of any BCAR Section L licence or company authorisations previously held. These protected rights under Part-66 are a continuation of certifying privileges under an existing licence or certifying authorisation which allows current personnel to continue working and certifying without the need to re-qualify. Authorisations issued by a Part-145 organisation should therefore be similarly restricted in scope. It should be noted that conversion to the full Part-66 licence standard is optional.

14.6 Part-66 Category B1 licences issued by the UK CAA may also allow the certification, under the provisions of Articles 14 and 16 of the Air Navigation Order 2005 (as amended), for work outside of a CAA approved maintenance organisation on aircraft which are not operated for commercial air transport. Such privileges are limited to UK registered aircraft

only. Certifications may only be made for those aircraft types which are endorsed individually or as Group Type Ratings on the licence. The privileges will reflect the current limitations for relevant BCAR Section L licence categories highlighted earlier in the appropriate paragraphs of this Notice unless specified otherwise.

15 PART-66 CATEGORY B2 AIRCRAFT MAINTENANCE LICENCE

15.1 A Part-66 Category B2 Aircraft Maintenance Licence (AML) may be issued to a person who has demonstrated a competence to complete maintenance on avionic and electrical systems. The Category B2 licence is primarily intended to be used for the purposes of qualification of avionic line maintenance staff for authorisation. The licence, in its own right, does not entitle the holder to exercise any certifying privileges in respect of aircraft and will be used in conjunction with a Part-145 or Part-M subpart F certification authorisation.

15.2 Such authorisations will be issued by a Part-145 or Part-M subpart F maintenance organisation appropriately approved by the competent Authority of a EU Member State. This means that the Part-66 Aircraft Maintenance Licence issued by the UK CAA can readily be used as the basis for a certification authorisation throughout the EU Member States. Part 145.A.30 (h) also requires it to be used as a prerequisite for authorisation of staff acting as inspectors or supervisors within base maintenance. Licence holders will therefore act in accordance with the authorisation procedures of the company concerned.

NOTE: (1) It should be noted that a Part-66 licence may not provide for full equivalence in another EU Member State to certify for work relating to any National legislation which sits outside of EASA requirements.

NOTE: (2) A Category B2 licence cannot be used for the purposes of a Category A certification authorisation unless the Category A licence is also held.

NOTE: (3) As of 28 September 2008 a Certificate of Release to Service may be issued for maintenance on a non-large aircraft, not operating as commercial air transport, based on a Part-66 licence extended with the appropriate type rating in accordance with Part-M. This maintenance is limited to items not included in the list at Part-M Appendix VII.

15.3 Category B2 certification authorisations allow the holder to issue Certificates of Release to Service under Part 145.A.50 for the line maintenance on aircraft which are endorsed as individual types on the licence and the corresponding authorisation. Category B2 licences to the full Part-66 standard include scope to allow the issue of a certification authorisation covering work on a combination of the following aircraft systems:

- instruments;
- automatic pilots (aeroplanes, helicopters and autoland systems);
- radio communication/navigation;
- radio radar;
- electrical power generation and distribution systems (power distribution in respect of avionic systems) including lighting systems.

Scope is not included for authorisation in respect of work on electrical power distribution systems or electrical/avionic components in mechanical systems.

NOTE: The Category B2 licence holder is not entitled to certify for any overhaul work.

15.4 The certification authorisation can only be issued by a Part-145 or Part-M subpart F organisation when the licence holder has the appropriate basic category B2 listed and the aircraft type rating endorsed on the Part-66 Aircraft Maintenance Licence. The type training for a Category B2 type endorsement, conducted under a Part-147 approval, will represent the appropriate technologies as specified in Part-66. The certification authorisation will specify the privileges for the individual, giving due regard to the company scope of approval and any associated procedures agreed with the EU Competent Authority, and will specify any limitations to the authorisation accordingly.

NOTE: A Part-66 licence issued on the basis of protected rights may contain technical restrictions equivalent to the limitations of any BCAR Section L licence or company authorisations previously held. These protected rights under Part-66 are a continuation of certifying privileges under an existing

licence or certifying authorisation which allows current personnel to continue working and certifying without the need to re-qualify from scratch. Authorisations issued by a Part-145 organisation may therefore be similarly restricted in scope. It should be noted that conversion to the full Part-66 licence standard is optional at present.

NOTE: Grandfather rights are authorisation privileges granted by an employer in accordance with an authorisation procedure previously approved by the CAA that exceed the holder's basic licence. Such authorisations are not considered as protected rights on transfer to a Part-66 licence as they exceed the scope of the basic licence.

- 15.5 Part-66 Category B2 licences issued by the UK CAA may also be issued with an endorsement, within an Annex to the licence, allowing the certification, under the provisions of Articles 14 and 16 of the Air Navigation Order 2005 (as amended) (national privileges), for work outside of a CAA approved maintenance organisation on aircraft which are not operated for commercial air transport. Such privileges are limited to UK registered aircraft only. Certifications may only be made for those types which are endorsed individually or as BCAR Section L Group Type Ratings on the licence. The limitations will reflect the current limitations for relevant BCAR Section L licence categories highlighted earlier in the appropriate paragraphs to this Notice unless specified otherwise.

16 PART-66 CATEGORY C AIRCRAFT MAINTENANCE LICENCE

- 16.1 A Part-66 Category C Aircraft Maintenance Licence (AML) may be issued to a person who has demonstrated a competence to release an aircraft following Base Maintenance. The privileges apply to the aircraft in its entirety in a Part-145 organisation. The licence, in its own right, does not entitle the holder to exercise any certifying privileges in respect of aircraft and will be used in conjunction with a Part-145 certification authorisation.

- 16.2 Such authorisations will be issued by a Part-145 maintenance organisation appropriately approved by the Competent Authority of an EU Member State. This means that the Part-66 Aircraft Maintenance Licence issued by the UK CAA can readily be used as the basis for a certification authorisation throughout the EU Member States. Licence holders will therefore act in accordance with the authorisation procedures of the company concerned.

NOTE: (1) It should be noted that a Part-66 licence may not provide for full equivalence in another EU Member State to certify for work relating to any National legislation which sits outside of Part-145. Additional language requirements may also apply.

NOTE: (2) Category C licences at present only apply to aircraft greater than 5700 kg Maximum Take-Off Mass (MTOM).

- 16.3 Category C certification authorisations allow the holder to issue Certificates of Release to Service under Part-145.A.50 following the completion of base maintenance on aircraft which are endorsed on the licence and the corresponding authorisation as individual types. Such persons are in essence certifying for the completion of the process associated with base maintenance and are supported by appropriately qualified and experienced category B1 and B2 staff, who will inspect and supervise the actual work. The scope of coverage therefore reflects the whole aircraft and is not limited to certification of solely mechanical or avionic systems.

- 16.4 It should be noted that a Category C licence holder cannot be authorised to act as Category B certifying staff, exercising line maintenance certification privileges, nor conducting base maintenance, in the role of an inspector or supervisor clearing individual tasks, unless the licence is also endorsed with the appropriate Category B1 and/or B2 licence.

- 16.5 The certification authorisation can only be issued by a Part-145 organisation when the licence holder has the basic Category C listed and the aircraft type rating endorsed on the Part-66 Aircraft Maintenance Licence. The type training for a Category C type endorsement, conducted under a Part-147 approval, will represent the appropriate mix of systems knowledge as specified in Part-66. The certification authorisation will specify the privileges for the individual, giving due regard to the company scope of approval and any associated procedures agreed with the EU Competent Authority.

NOTE: A person qualified to Category B1 or B2 level with type endorsements will also be eligible for a Category C type authorisation, providing the basic Category C licence is held.

17 PART-66 GENERAL

Holders of Part-66 AML with type endorsements may be required to undertake appropriate differences type training where the aircraft type to be authorised embodies significant variations in the equipment fitted or the aircraft systems configuration. The responsibility for determining the training to be undertaken will remain with the Part-145 maintenance organisation.

Commission Regulation 1592/2002 Annex II refers to aircraft types which have not been adopted under Commission Regulation (EC) 2042/2003. Certification on these aircraft types will continue under National licensing requirements. The UK CAA will continue to issue National licenses, (BCAR Section L), for this purpose for the time being.

It is anticipated however, that from 2006/ 2007, these aircraft types will be endorsed into an annex to a Part-66 licence, thereby combining the two documents. The certification basis for the annex II types will remain as National Requirements.

18 CANCELLATION This Notice cancels Airworthiness Notice No. 3 Issue 20, dated 29 March 2006, which should be destroyed.

AIRWORTHINESS NOTICE

**No. 4
Issue 17
29 March 2006**

Propellers Approved For Use On Civil Aircraft Manufactured In The United Kingdom

- 1** Propellers listed in the attached Appendix are approved for use on civil aircraft manufactured in the United Kingdom with Certificates of Airworthiness issued by the Civil Aviation Authority. For those aircraft types which have a Civil Aviation Authority Type Certificate Data Sheet (TCDS), that TCDS should be consulted for details of approved propellers.
NOTE: Propellers listed in this Notice also include those which have been approved for aircraft certificated in the Special Category only, and it would therefore be wrong to assume that the aircraft listed against a propeller type will automatically qualify for certification in other Categories with that propeller fitted.
- 2** For convenience, propellers are listed under types of engines, but each propeller is approved only for the specific engine-airframe combination shown.
- 3** Propellers manufactured after the date of this Notice to the same drawing numbers as those given in the attached list may, in addition, bear certain issue numbers. These issue numbers are used mainly to indicate minor modifications which do not affect safety, but in some cases the intention is to indicate changes in pitch or diameter.
 - 3.1** Where an issue number has been used to indicate a minor modification and the pitch and diameter remain the same as against the drawing number shown in this list, it may be assumed that the propeller is approved.
 - 3.2** Where an issue number has been used to indicate a change in pitch or diameter and either of these differ from the figures given in the attached list, the propeller is not approved unless it actually appears in this list.
- 4** Before fitting a variable-pitch propeller it is essential to ensure that the basic pitch-range setting conforms with the latest setting approved for the particular engine-airframe combination.
- 5** The pitch quoted is that measured at the radius defined by the manufacturer. Usually this is at 70% or 71% of radius, although in some cases it is at 75%.
- 6** If it is desired to use a propeller not included in the list, application for approval should be made in accordance with the procedure prescribed in Chapter A4-4 of British Civil Airworthiness Requirements.
- 7** For propellers approved for imported aircraft of foreign origin, reference should be made to the appropriate publications issued by the Airworthiness Authority concerned, or the relevant manufacturer. Information may also be obtained from the Civil Aviation Authority, Safety Regulation Group.
- 8** **CANCELLATION** This Notice cancels Airworthiness Notice No. 4, Issue 16, dated 29 October 2001, which should be destroyed.

AIRWORTHINESS NOTICE No. 4**Appendix 1**

Issue 7

29 September 2006

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
ARDEM X			
Z3405	4.75	2.45	Turbulent, Nipper 3
Z3407	4.75	2.7	Turbulent
HR1201	4.75	2.45	Turbulent, Nipper 3
ASTAZOU XIIH and H1			
FH 76-2-07	8.2	VP	Skyvan Mk. 2
CHEETAH 15, 17 and 27			
CR30/242/1	8.25	VP	Avro 19
CR30/242/4	8.25	VP	Avro 19
CHEETAH 19			
61271A/X3	7.50	7.10	Anson
A66365	7.50	7.10	Anson
CIRRUS MAJOR 2			
A66290/X1	7.00	4.58	Cygnnet
LA520	6.67	4.59	Cygnnet
Z974/1	6.23	5.26	M.18
CIRRUS MAJOR 3			
A66290/X1	7.00	4.58	Messenger
A66290/X6	7.00	4.98	M.18
A66670/X1	6.75	4.82	Messenger
A66697/X6	6.75	4.97	Auster J.5.G, Auster J.5.K, Messenger
A66697/X7	6.75	4.50	Auster J.5.G
A66940/X1	6.00	6.66	Aries
B67869/X1	6.96	4.58	Messenger
B67921/X1	6.67	4.50	Auster J.5.G, Messenger
B67941/X1	6.67	4.97	Auster J.5.G, J.5.K
B67971/X1	6.50	4.99	Auster J.5.G
C67975/X1	6.92	4.58	Messenger
C67999/X1	6.83	4.76	Messenger 2A
HR669	6.84	3.53	Messenger
LA520	6.67	4.59	Cygnnet
Z3756	6.30	5.15	Messenger
Z6013	6.67	4.51	Blackburn B2, Messenger
Z6014	6.67	4.70	Messenger

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
CIRRUS MINOR I			
A66580/X6	6.00	4.28	Auster 5.J.4, Taylorcraft 'C' and 'D'
B67936/X2	5.92	4.28	Taylorcraft 'D'
C66897/X3	5.88	4.28	Taylorcraft 'D'
H020-178-120L	5.83	3.9	Auster 5.J.4
H020-183-105L	6.00	3.44	Auster 5.J.4
LA505	5.87	3.38	Auster 5.J.4, B.A. Swallow 2, Taylorcraft 'C' and 'D'
LA544	5.88	4.15	Mosscraft M.A.2
LA617	6.65	2.75	Taylorcraft 'D'
N209	5.87	3.38	B.A. Swallow 2
Z5701	5.50	4.78	Taylorcraft 'D'
Z8020	5.87	4.27	B.A. Swallow 2, Taylorcraft 'D'
Z8022	6.00	3.62	Auster 5.J.4, Taylorcraft 'C' and 'D', B.A. Swallow 2
CIRRUS MINOR II & IIA			
A66580/X1	6.00	4.61	Auster 5.J.1
A66580/X2	6.00	4.52	Auster 5.J.1
A66619/X1	5.75	5.22	Gemini
A66619/X2	5.75	5.09	Gemini
A66619/X4	5.75	4.93	Gemini
A66619/X6	5.75	4.79	Auster 5.J.1, Gemini
A66859/X2	5.50	5.46	Gemini
A66929	5.75	5.22	Gemini
B66883/X1	5.86	4.52	Auster 5.J.1
B67858/X2	5.75	4.79	Auster 5.J.1
B67859/X1	5.87	4.60	Auster 5.J.1
B67992/X1	5.73	4.74	Auster 5.J.1
B67933/X1	5.73	4.78	Auster 5.J.1
B67936/X1	5.92	4.52	Auster 5.J.1
B67943/X1	5.73	4.74	Auster 5.J.1
B67944/X1	5.75	4.74	Auster 5.J.1
B67987/X1	5.67	4.74	Auster 5.J.1
B67990/X1	5.92	4.52	Auster 5.J.1
C66631/X1	5.75	4.66	Auster 5.J.1
C66897/X1	5.88	4.52	Auster 5.J.1
C66897/X2	5.88	4.84	Auster 5.J.1
C66897/X3	5.88	4.28	Auster 5.J.1
C66914/X1	5.67	5.22	Gemini
C66934/X1	5.83	4.52	Auster 5.J.1
C67891/X1	5.94	4.52	Auster 5.J.1
FP400/2A-1 and -2	5.42	5.07	Gemini, Auster 5.J.1
HR702	5.75	3.97	Auster 5.J.1
HR702/2	5.75	4.11	Auster 5.J.1
HR724	5.42	5.07	Gemini
HR1241	6.00	4.04	Auster 5.J.1
H020-178-120L	5.83	3.9	Auster 5.J.1

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
CIRRUS MINOR II & IIA (continued)			
H020-183-105L	6.00	3.44	Auster 5.J.1
Z5435	5.50	4.65	Gemini
Z5641	6.00	4.04	Auster 5.J.1
Z5642	6.00	4.04	Auster 5.J.1
Z5646	6.00	4.04	Auster 5.J.1
Z5647	6.00	4.04	Auster 5.J.1
Z5701	5.50	4.78	Auster 5.J.1, Gemini
Z5702	5.50	4.78	Gemini
Z5704	5.50	5.06	Gemini
Z5705	5.25	5.02	Gemini
Z5801	5.64	3.83	Auster 5.J.1
CONTINENTAL C75			
1188/3	6.33	3.48	Auster 5.J.2
1188/4	6.33	3.29	Auster 5.J.2
1188/5	6.00	3.29	Auster 5.J.2
Z5750	5.75	3.97	Auster 5.J.2
Z5751	6.00	3.22	Auster 5.J.2
CONTINENTAL C125			
FP422	5.67	5.65	Gemini
FP422/2	5.67	5.33	Gemini
HR728	5.67	5.33	Gemini
CONTINENTAL O-200			
F-H2/LC14-183 110 7R	6.00	3.6	Linnet
HR1211	5.75	3.2	Auster J.4, Condor
HR1212	5.75	3.2	Auster J.4, Condor
Z5792	5.75	3.97	Linnet
Z5793	5.75	3.2	Auster J.4, Condor
R. R. CONTINENTAL O-200A			
1A101/DCM-69-52	5.75	4.33	Linnet
1A105/SCM/7053	6.84	4.42	Beagle B121
D11/28/7C	5.76	4.13	Auster J.4
Z5723	5.1	4.78	Linnet
Z5794	5.75	3.7	Linnet
HR1211	5.75	3.2	Auster J.4, Condor
HR1212	5.75	3.2	Auster J.4, Condor
R. R. CONTINENTAL O-240A			
HR1631	5.83	4.16	Condor
HR1633	5.83	4.00	Condor
1C172/EM	6.00	4.08	Condor

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
CONTINENTAL GIO-470			
2AF36C68/100 RFM-10	7.50	VP	Beagle B.206Y
R. R. CONTINENTAL GIO-470			
2AF36C68/100 RFM-10 to -12	7.50	VP	Beagle B.206 Series 1
CONTINENTAL GTSIO-520-C			
3AF34C86/90LF	7.5	VP	Beagle B206 Series 2
HC-A3VF/2/V8833	7.37	VP	Beagle B206 Series 2
DART 505 and 506			
CR141/4-20-4/18	10.00	VP	Viscount 744, 745, 749
CR147/4-20-4/20	10.00	VP	Viscount 732, 744
CR129/4-20-4/11, /16	10.00	VP	Viscount 701, 707, 708, 720, 724, 737
CR139/4-20-4/17, /19	10.00	VP	720, 724, 737
CR148/4-20-4/21E	10.00	VP	Viscount 701, 702, 730, 734, 735, 736, 739, 744, 747, 772, 773
CR155/4-20-4/25/26	10.00	VP	Viscount
CR248/4-20-4/40, /41	10.00	VP	Viscount 701, 707
DART 510			
CR130/4-20-4/12	10.00	VP	Viscount 802, 803, 804, 805, 806, 807, 808
CR240/4-20-4/32	10.00	VP	Viscount 700D, 802,806,807,808
CR249/4-20-4/42	10.00	VP	Viscount 700D, 802,806,807,808
DART 510 and 515			
CR130/4-20-4/12	10.00	VP	Viscount 739, 742, 745D, 748, 754, 755, 756, 759, 760, 761, 763, 764, 765, 768, 769, 776, 779, 781, 782, 784, 785, 786, 789, 794, 798
PD203/424/1 and /2	10.00	VP	Viscount 748, 754
DART 514			
CR201/4-30-4/20	12.00	VP	HS 748 Series 1
DART 520			
CR178/4-20-4/32	10.00	VP	Viscount 806
DART 525			
CR179/4-20-4/33	10.00	VP	Viscount 812, 813, 814, 815, 816, 818, 827, 828, 831, 832, 833, 835, 836, 837, 838, 839
DART 525F			
CR179/4-20-4/33	10.00	VP	Viscount 843
DART 526			
CR186/4-30-4/16	11.50	VP	Argosy

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
DART 527 and 532-9			
CR187/4-30-4/18	12.50	VP	Herald
DART 530			
CR179/4-20-4/33	10.00	VP	Viscount 833
DART 531 AND 531U			
CR212/4-30-4/22	12.00	VP	HS 748 Series 2
DART 532, 532-2S and 532-2L			
CR212/4-30-4/22	12.00	VP	Argosy
CR212/4-30-4/22	12.00	VP	HS 748 Series 2A
DART 532-2L, 532-2S, 533-2, 534-2, 535-2 and 536-2T			
CR212/4-30-4/22	12.00	VP	HS 748 Series 2 and 2A
DART 533-2			
CR212/4-30-4/22	12.00	VP	HS 748 Series 1
DART 534-2, 535-2 and 536-2			
CR212/4-30-4/22	12.00	VP	HS 748 Series 2B
CR251/4-30-4/49	12.00	VP	HS 748 Series 2B
GIPSY 1			
DH5180/5	6.33	5.08	DH.60G
GIPSY 2			
DH5180/14	6.33	5.00	DH.60G
GIPSY 3			
67104A/X2	7.00	5.10	DH.80A
67104A/X12	7.00	5.18	DH.80A
DH5212/D	6.17	5.42	DH.80A
DH5218/C	6.50	5.16	DH.80A
E860/1	6.87	4.26	Blackburn B2
LA520	6.67	4.59	DH.80A
LA543	7.00	4.00	Blackburn B2
GIPSY MAJOR (AUSTER 3)			
DH5220/P25	6.33	4.58	Auster 3
LA596	6.50	5.00	Auster 5.c
GIPSY MAJOR 1			
5232/A/1	6.50	5.10	DH.83
61187A/X1	6.75	5.50	Hawk Trainer, Whitney Straight
61187A/X9	6.75	5.24	Falcon, Monarch
61187A/X11	6.75	5.18	Hawk Trainer

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
GIPSY MAJOR 1 (continued)			
61326A/X1	6.17	5.92	DH.85, Whitney Straight
61326A/X2	6.17	5.56	Whitney Straight
61326A/X4	6.17	6.58	DH.85
61326A/X8	6.17	6.01	DH.85, Whitney Straight, DH.87B
61326A/X9	6.17	5.72	Monarch, Whitney Straight
61326A/X10	6.17	5.85	Whitney Straight
61414A/X2	6.58	5.65	DH.85
67104A/X2	7.00	5.10	DH.80A, DH.83, DH.85
67104A/X3	7.00	4.95	DH.87B
67104A/X4	7.00	4.77	DH.82A, DH.83, DH.85, DH.87B
67104A/X6	7.00	5.33	DH.80A, DH.83, DH.85
67104A/X7	7.00	4.71	DH.87B
67104A/X10	7.00	4.60	DH.82A, DH.83, DH.85, DH.87B
67104A/X11	7.00	5.52	DH.85
67104A/X12	7.00	5.18	DH.85, DH.87B, DH.82A
67104A/X13	7.00	5.40	DH.85
67104A/X14	7.00	4.52	DH.82A, DH.83, DH.85
67104A/X15	7.00	5.01	DH.85
67575A/X1	7.00	4.71	DH.82A
84723A/X1	7.00	4.84	DH.82A, DH.87B
94103A/X17	6.75	4.80	Falcon
A66016/X4	7.00	4.58	DH.82A
A66696/X1	6.75	4.83	Auster 5.J.1.B; J.1.N; 5.J.5; J.5.B; J.5.F; J.5.Q; 5D; 3
A66696/X3	6.75	4.67	Auster 5.J.1.B; 5.J.5; J.1.N; J.5.B
A66753/X1	6.75	5.01	Auster J.1.N, DH.82A
A66772/X2	6.50	5.00	Auster J.5.B
A66860/X1	6.50	5.66	Auster 5.C
A66911/X3	6.00	5.77	Hawk Trainer
A66938/X2	7.50	3.52	DH.82A, Jackaroo
A104940/X2	7.42	3.52	DH.82A, Jackaroo
A104940/X3	7.42	3.70	DH.82A
A104941/X2	7.34	3.56	Jackaroo
A104942/X2	7.25	3.59	Jackaroo
A104943/X2	7.17	3.75	Jackaroo
A104943/X3	7.17	3.62	DH.82A, Jackaroo
A104944/X2	7.09	3.62	Jackaroo
A104945/X2	7.00	3.60	Jackaroo
B66131/X1	5.92	5.92	Monarch
B66143/X1	6.74	5.49	DH.85, DH.87B
B66143/X2	6.74	4.69	DH.82A
B66980/X1	6.58	5.24	Falcon, Monarch
B67926/X1	6.42	4.80	Auster 5.J.5; 5.J.1.B; J.5.B
B67927/X2	6.92	4.60	DH.87B

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
GIPSY MAJOR 1 (continued)			
B67940/X1	6.57	3.83	Auster 5D
B67995A/XI	6.33	5.12	Auster J.5.F
B104952/X1	6.92	4.07	Jackaroo
B104952/X2	6.92	3.95	Jackaroo
B104956/X1	6.30	5.12	Auster 5.J.1.B; J.1.N; 5.J.5; J.5.B; J.5.F; J.5.Q; 5D; 3
B104977/X1	6.37	5.12	Auster J.5.F
BA211/2	6.18	5.41	Whitney Straight
C66969/X1	5.92	4.50	DH.82A, DH.87B
C67887/X1	6.63	4.83	Auster 5.J.1.B; J.1.N; 5.J.5; J.5.B; J.5.F; J.5.Q; 5D; 3
C67927/X1	6.92	5.18	DH.87B
DH5180/14/21	6.33	5.00	Auster 5D
DH5200/M	6.33	4.50	Auster J.1.N; J.1.B; J.5
DH5208/C/2	6.33	4.92	DH.80A
DH5212/A	6.17	5.25	DH.90A
DH5212/C	6.17	5.17	DH.84
DH5212/D	6.17	5.42	Whitney Straight, DH.80A, DH.82A, DH.84, DH.90A
DH5212/G	6.17	5.14	DH.84
DH5218/B	6.50	5.10	DH.80A, DH.82A, DH.84
DH5218/BX/10	6.50	5.10	DH.83
DH5220/B	6.33	5.08	DH.82A
DH5220/G	6.33	4.58	DH.82A, DH.83
DH5220/H	6.33	4.92	Auster J.1.N., DH.82A, DH.83, DH.84
DH5220/L	6.33	4.75	DH.82A, Auster 5D, 5.J.5., 5.J.1.B
DH5220/M	6.33	4.50	DH.82A, Auster 5D, 5.J.1.B, 5.J.5, J.1.N
DH5220/P	6.33	4.58	Auster 3; 5.D; 5.J.1.B; 5.J.5; J.1.N; J.5B; DH.60G; DH.82A; DH.87B
DH5220/B (Poncelet)	6.33	5.08	DH82A
DH5220/G (Poncelet)	6.33	4.58	DH82A
DH5220/H (Poncelet)	6.33	4.92	DH82A
DH5220/L (Poncelet)	6.33	4.75	DH82A
DH5220/M (Poncelet)	6.33	4.50	DH82A
DH5220/P (Poncelet)	6.33	4.58	DH82A
DH5228A	6.00	5.25	DH.84
DH5228/B	6.00	5.12	DH.84
DH5230/H	6.33	4.92	Auster J.1.N
DH5232/A	6.50	5.10	DH.80A, DH.82A, DH.83, DH.84, DH.85
DH5232/B	6.50	5.30	DH.82A, DH.83, DH.84, DH.85
DH5234/A	6.75	5.08	DH.80A, DH.82A, DH.85
DH5234/B	6.75	4.95	DH.80A, DH.82A, DH.85, DH.87B
DH5234/D	6.75	4.80	DH.80A, DH.85, DH.87, DH.87B, Messenger
DH5234/E	6.75	4.50	DH.85, DH.87A, DH.87B
DH5234/H	6.75	4.30	DH.87B
DH5234/J	6.75	4.40	DH.85, DH.87B, DH.82A
DH5250/B	6.33	5.17	DH.80A, DH.90A, Auster J.1.N
HR671	6.84	3.53	DH.82A, Jackaroo
HO21-198B-140L	6.49	4.59	Auster J1N

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
GIPSY MAJOR 1 (continued)			
HO21-208B-108L	6.82	3.54	DH.82A
HO21-198B-140L	6.49	4.59	DH.82A
HO21-198B-140LK	6.49	4.59	DH.82A
HO21LM-198B-140L	6.49	4.59	DH.82A
HO21LM-207S-155LK	6.79	5.08	DH.82A
LA506/3	6.50	4.35	DH.82A
LA510	6.50	5.36	Monarch, Whitney Straight, DH.85
LA520	6.67	4.59	DH.90A
LA523	6.50	5.16	Auster J.1.N
LA543	7.00	4.00	Blackburn B2
LA550	6.67	5.05	Hawk Trainer
LA550/1	6.67	5.05	DH.85
LA594/2	6.50	4.35	DH.82A
LA596	6.50	5.00	DH.82A, DH.84, DH.85, Hawk Trainer, Messenger, Whitney Straight
LA596/3	6.50	5.36	DH.87B
LA604	6.50	4.58	DH.82A, DH.84, DH.87B
LA604/AM	6.50	4.51	Auster J.1.N
LA623/2	6.84	3.53	Mercury
OP60/B	6.16	5.42	Hawk Trainer, Whitney Straight, Falcon
Z970	6.23	5.72	Hawk Trainer
Z970-2	6.38	6.23	Falcon
Z971	6.23	5.26	DH.82A, Monarch, Whitney Straight
Z973	6.23	5.50	DH.80A, DH.82A, DH.90A, Falcon, Hawk Trainer, Monarch, Whitney Straight, Auster J.1.N
Z978	5.85	5.50	DH.82A, Auster J.1.N
Z1510	6.36	5.20	DH.84
Z2010	6.50	5.65	Falcon
Z3101	6.42	5.22	DH.90A
Z3104	6.50	5.42	DH.90A
Z5890	6.50	4.49	Auster 3; 5.D; 5.J.1.B; 5.J.5
Z8010	6.84	3.53	DH.82A, Jackaroo
Z8014	6.84	3.53	Auster J.5.B, Auster J.1.N, Auster 3G
ZD5220/1	6.33	4.83	DH.82A
871	6.50	3.05	DH.82A
1993	6.04	4.18	DH.82A
GIPSY MAJOR 1C			
61326A/X9	6.17	5.72	Monarch
66875/X4	6.50	5.84	Gemini
67104A/X7	7.00	4.71	DH.87B
94103A/X13	6.75	4.92	Chipmunk
A66696/X1	6.75	4.83	Auster J.5.F
A66753/X1	6.75	5.01	Leopard Moth
A66875/X4	6.50	5.84	DH.82A
A66938/X3	7.50	3.70	Jackaroo
A104940/X3	7.42	3.70	Jackaroo

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
GIPSY MAJOR 1C (continued)			
B66143/X2	6.74	4.69	DH.82A
B104951/X2	6.75	5.02	DH.82A
B104952/X1	6.92	4.07	Jackaroo
DH5220/H (Invincible Airscrews Pty.)	6.33	4.92	DH82A
DH5220/M	6.33	4.50	Auster J.1.N
DH5220/P	6.33	4.58	Auster J.1.N, DH.82A, DH.83
DH5220/P (Poncelet)	6.33	4.58	DH82A
DH5234/D	6.75	4.80	DH.85, DH.87B
HO21-198B-140L	6.49	4.95	DH.82A
HO21-198B-140LK	6.49	4.59	DH.82A
LA596	6.50	5.00	Hawk Trainer, DH.87B
LA604	6.50	4.58	DH.82A
Z973	6.23	5.50	Gemini, Hawk Trainer
Z5620/2	6.50	4.33	Messenger
Z8010	6.84	3.53	DH.82A, Jackaroo
GIPSY MAJOR 1D			
67104A/X10	7.0	4.60	DH.87B
A66696/X1	6.75	4.83	Messenger
DH5234/J	6.75	4.40	DH.87B
HR671	6.84	3.53	Messenger
LA596	6.50	5.00	Messenger
LA604	6.50	4.58	Messenger
Z971	6.23	5.26	Messenger
Z973	6.23	5.50	DH.90A
Z5620/2	6.50	4.33	Messenger
Z5623	6.50	4.30	Messenger
Z8010	6.84	3.53	Messenger
GIPSY MAJOR 1F			
1993	6.04	4.18	DH82A
61326A/X8	6.17	6.01	DH87B
67104A/X10	7.00	4.60	DH82A, DH87B
67104A/X12	7.00	5.18	DH82A, DH87B
67104A/X14	7.00	4.52	DH82A
67104A/X3	7.00	4.95	DH87B
67104A/X4	7.00	4.77	DH82A, DH87B
67104A/X7	7.00	4.71	DH87B
67575A/X1	7.00	4.71	DH82A
84723A/X1	7.00	4.84	DH82A, DH87B
871	6.50	3.05	DH82A
A104940/X2	7.42	3.52	DH82A
A104940/X3	7.42	3.70	DH82A
A104943/X3	7.17	3.62	DH82A

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
GIPSY MAJOR 1F (continued)			
A66016/X4	7.00	4.58	DH82A
A66753/X1	6.75	5.01	DH82A
A66938/X2	7.50	3.52	DH82A
B66143/X1	6.74	5.49	DH87B
B66143/X2	6.74	4.69	DH82A
B67927/X2	6.92	4.60	DH87B
C66969/X1	5.92	4.50	DH82A, DH87B
C67927/X1	6.92	5.18	DH87B
DH5212/D	6.17	5.42	DH82A
DH5218/B	6.50	5.10	DH82A
DH5220/B	6.33	5.08	DH82A
DH5220/G	6.33	4.58	DH82A
DH5220/H	6.33	4.92	DH82A
DH5220/L	6.33	4.75	DH82A
DH5220/M	6.33	4.50	DH82A
DH5220/P	6.33	4.58	DH82A, DH87B
DH5220/B (Poncelet)	6.33	5.08	DH82A
DH5220/G (Poncelet)	6.33	4.58	DH82A
DH5220/H (Poncelet)	6.33	4.92	DH82A
DH5220/L (Poncelet)	6.33	4.75	DH82A
DH5220/M (Poncelet)	6.33	4.50	DH82A
DH5220/P (Poncelet)	6.33	4.58	DH82A
DH5232/A	6.50	5.10	DH82A
DH5232/B	6.50	5.30	DH82A
DH5234/A	6.75	5.08	DH82A
DH5234/B	6.75	4.95	DH82A, DH87B
DH5234/D	6.75	4.80	DH87B
DH5234/E	6.75	4.50	DH87B
DH5234/H	6.75	4.30	DH87B
DH5234/J	6.75	4.40	DH82A, DH87B
HO21-198B-140L	6.49	4.59	DH82A
HO21-198B-140LK	6.49	4.59	DH82A
HO21-207S-155LK	6.79	5.08	DH87B
HO21-208B-108L	6.82	3.54	DH82A
HO21LM-198B-140L	6.49	4.59	DH82A
HO21LM-207S-155LK	6.79	5.08	DH82A
HR671	6.84	3.53	DH82A
LA506/3	6.50	4.35	DH82A
LA594/2	6.50	4.35	DH82A
LA596	6.50	5.00	DH82A
LA596/3	6.50	5.36	DH87B
LA604	6.50	4.58	DH82A, DH87B
Z8010	6.84	3.53	DH82A
Z971	6.23	5.26	DH82A

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
GIPSY MAJOR 1F (continued)			
Z973	6.23	5.50	DH82A
Z978	5.85	5.50	DH82A
ZD5220/1	6.33	4.83	DH82A
GIPSY MAJOR 1H			
A66875/X4	6.50	5.84	DH82A
B66143/X2	6.74	4.69	DH82A
B104951/X2	6.75	5.02	DH82A
| DH5220/H (Invincible Airscrews Pty.)	6.33	4.92	DH82A
DH5220/P	6.33	4.58	DH82A
DH5220/P (Poncelet)	6.33	4.58	DH82A
HO21-198B-140L	6.49	4.59	DH82A
HO21-198B-140LK	6.49	4.59	DH82A
LA604	6.50	4.58	DH82A
Z8010	6.84	3.53	DH82A
GIPSY MAJOR 1J			
A104940/X2	7.42	3.52	DH.82A
DH5212D	6.17	5.42	Hawk Trainer
HR671	6.84	3.53	DH.82A
LA604	6.50	4.58	DH.82A, Hawk Trainer
Z973	6.23	5.50	Hawk Trainer
Z8010	6.84	3.53	DH.82A
GIPSY MAJOR 10 Mks. 1-1, 1-3, 1-7			
A66578/X1	6.75	4.64	DH.85
A66661/X2	6.75	5.01	Chipmunk
A66661/X3	6.75	4.71	Chipmunk
A66661/X4	6.75	4.75	Auster 6A
A66696/X1	6.75	4.83	Auster J.1.N, DH.82A, Beagle, A61 Series 2
A66696/X1/3	6.33	4.67	Beagle A61 Series 2
A66696/X3	6.75	4.67	Auster J.5.L, Auster J.5.P, Chrislea Super Ace, Auster A61, DH.85, Auster 6A, Beagle A61 Series 2
A66696/X6	6.75	4.19	Auster J.5.P
A66753/X1	6.75	5.01	Chipmunk
A66875/X1	6.50	5.72	Gemini
A66875/X3	6.50	6.02	Gemini
A66875/X4	6.50	5.84	Gemini
A66875/X7	6.50	6.22	Gemini
A66938/X2	7.50	3.52	Auster 6A
A66938/X3	7.50	3.70	Auster 6A
A67960/X1	6.75	4.67	Auster J.5.P, Beagle A61 Series 2
A94103A/X11	6.75	5.34	Chipmunk
B67934/X1	6.62	4.71	Chipmunk

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
GIPSY MAJOR 10 Mks. 1-1, 1-3, 1-7 (continued)			
B67935/X1	6.75	5.01	Chipmunk
DH5232/AR/5	6.50	5.10	DH.82A
DH5234-B	6.75	4.95	Beagle A61
HR671	6.84	3.53	Chrislea Super Ace
HR708	6.33	4.33	Chrislea Super Ace
LA596	6.50	5.00	Gemini
Z971	6.23	5.26	Messenger
Z973	6.23	5.50	Gemini, Hawk
Z1510	6.36	5.20	Desford Trainer
Z5623/1	6.50	4.30	Messenger, Chrislea Super Ace
Z5672	6.25	4.44	Messenger, Chrislea Super Ace
Z5780	6.50	4.05	Messenger, Chrislea Super Ace
Z8010	6.84	3.53	Messenger, Chrislea Super Ace
Z8014	6.84	3.53	Auster 6A, Beagle Auster A61, Beagle A61 Series 2
GIPSY MAJOR 10 Mks. 1-1A, 1-3A, 1-7A, Mk. 2, 2-1			
A66753/X1	6.75	5.01	Auster J.1.N, Chipmunk, DH.85, Gemini 3C
A66904/X1	6.50	5.24	Chipmunk, Desford/Bobsleigh
A67925/X2	6.75	4.02	Chipmunk
A67925/X3	6.75	4.67	Auster 6A, Beagle A61, Auster J.5.P, J.5.R, J.5.L
A67960/X1	6.75	4.67	Auster J.5.L, J.5.P, J.5.R, Auster 6A, Beagle A.61
A67960/X2	6.75	4.19	Auster J.5.P, Auster J.5.R
A67889	6.75	5.01	Chipmunk
B104972	6.47	5.01	Chipmunk
B104973	6.30	5.36	Chipmunk
B67871/X1	6.58	5.01	Chipmunk
D67972/X1	6.50	5.84	Chipmunk, Gemini
D67972/X2	6.50	5.20	Gemini
D67972/X5	6.50	5.72	Chipmunk, Falcon, Gemini
D67989/X2	6.75	4.67	Auster J.5.L
D67996/X1	6.76	3.88	Chipmunk
D104967/X1	6.75	5.01	Chipmunk
HO21-198B-140L	6.49	4.59	Chipmunk
HO21-198B-140LK	6.49	4.59	DH.82A
HO21-208B-108L	6.82	3.54	Chipmunk
HO21HM-198B-140L	6.49	4.59	Chipmunk
HO21HM-198B-140LK	6.49	4.59	Chipmunk
HR864	6.50	4.58	Messenger, DH.87B
Z976	6.23	5.50	Falcon, Gemini

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
GIPSY MINOR			
DH5258/A	5.88	3.96	DH.94
DH5258/E	5.88	4.19	DH.94
DH5258/J	5.88	4.03	DH.94
DH5258/K	5.88	4.00	DH.94
HR1312	5.88	4.03	DH.94
GIPSY QUEEN 3			
61186A/X4	7.00	6.48	DH.89, DH.89A
61186A/X6	7.00	6.33	DH.89, DH.89A
61186A/X9	7.00	5.94	DH.89, DH.89A
61186A/X12	7.00	6.41	DH.89, DH.89A
A66327/X2	6.75	5.90	DH.89, DH.89A
Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
GIPSY QUEEN 3 (continued)			
A67967/X2	7.00	6.65	DH.89, DH.89A
A67967/X3	7.00	6.46	DH.89, DH.89A
A67967/X5	7.00	5.45	DH.89, DH.89A
B66936/X1	6.83	5.94	DH.89, DH.89A
B66937/X1	6.83	5.94	DH.89, DH.89A
B67982/X1	6.42	6.25	DH.89, DH.89A
GIPSY QUEEN 30-2			
PD70/212/1/2	7.50	VP	Prentice
GIPSY QUEEN 30-3 and 30 Mk. 2			
PD136/212/1/2	7.00	VP	DH.114
PD170/212/1/2	7.00	VP	DH.114
PD175/212/1/2	7.00	VP	DH.114
PD190/212/1	7.00	VP	DH.114
GIPSY QUEEN 70-3 and 70-4			
PD116/312/1 to /7 inc.	7.50	VP	DH.104
PD143/312/1 to /7 inc.	7.50	VP	DH.104
GIPSY QUEEN 70 Mk. 2			
PD143/312/1 to /7 inc.	7.50	VP	DH.104
GIPSY QUEEN 70 Mk. 3			
PD143/312/1 to /7 inc	7.50	VP	DH.104
GIPSY SIX 1			
61025A/X2	7.00	6.47	DH.86, DH.89, DH.89A
61052A/X3	7.00	6.29	DH.89, DH.89A
61052A/X5	7.00	6.03	DH.89, DH.89A

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
GIPSY SIX 1 (continued)			
61186A/X2	7.00	6.66	DH.86, DH.86B, DH.89, DH.89A
61186A/X3	7.00	6.56	DH.86, DH.86B, DH.89, DH.89A
61186A/X4	7.00	6.48	DH.89A, DH.89
61186A/X5	7.00	6.39	DH.89A, DH.89
61186A/X6	7.00	6.33	DH.86, DH.86B, DH.89, DH.89A
61186A/X7	7.00	6.28	DH.89, DH.89A
61186A/X9	7.00	5.94	DH.89A
61186A/X12	7.00	6.41	DH.89A
61189A/X1	7.00	7.11	Hawk
61189A/X5	7.00	6.96	Hawk
61189A/X7	7.00	6.84	Hawk
61189A/X8	7.00	7.29	Hawk
61375A/X1	7.00	6.76	Gull
61375A/X2	7.00	7.03	Hawk
A66327/X2	6.75	5.90	DH.89A
A67967/X2	7.00	6.65	DH.89
A67967/X5	7.00	5.45	DH.89A
B66128/X1	7.00	6.75	DH.89, DH.89A
B66942/X1	6.67	6.62	Hawk
C66026/X1	6.75	6.81	DH.89, DH.89A
C66093/X1	6.75	6.66	DH.86B, DH.89, DH.89A
DH5238/F	6.75	6.30	DH.86, DH.89, DH.89A
DH5238/G	6.75	6.40	DH.86, DH.89, DH.89A, Heck
DH5238/H	6.75	6.40	DH.89, DH.89A
DH5238/J	6.75	6.20	DH.89, DH.89A
DH5244/A	6.75	6.40	DH.89, DH.89A
DH5244/B	6.75	6.30	DH.89, DH.89A
DH5246/B	6.75	6.20	DH.86, DH.89, DH.89A
Z1800	6.92	6.20	Hawk
Z2192	6.75	6.18	DH.89, DH.89A
Z2682/1	6.72	6.20	DH.86, DH.89, DH.89A
Z2682/7	6.56	6.18	DH.89, DH.89A
Z2687	6.56	6.43	DH.86, DH.86B
Z2688	6.56	6.29	DH.89, DH.89A
Z2689	6.56	6.50	DH.86, DH.86B
GIPSY SIX 2			
PD30/211/1	7.00	VP	Proctor 1, 2, 3, 4, 5
PD154/211/1	6.75	VP	Mew Gull
PD209/211/1	7.00	VP	Mew Gull

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
LEONIDES 501, 502, 503 and 504			
CR162/3-20-3/5 or /5P	9.00	VP	President
PD158/313/1	9.00	VP	Prince
PD159/313/1	9.00	VP	Prince
PD184/313/1	9.00	VP	Beaver
PD232/313/1 and /2	9.00	VP	Prince, President
LEONIDES 503/8, 504/8 and 514/8			
PD205/323/1	11.00	VP	Twin Pioneer
LEONIDES 514/5A			
CR143/3-20-3/2	9.00	VP	President 2A
LEONIDES 531/8B			
PD237/323/1	11.00	VP	Twin Pioneer
LYCOMING GO-480-B			
Blade 9333C-3	7.50	VP	E.P.9
Hub HC82x20-1B	7.50	VP	E.P.9
P1033/G4-AD-0691236	7.75	VP	E.P.9
LYCOMING GO-480 G1A6			
Blade 9333C-3	7.50	VP	E.P.9
Hub HC83x20-1B	7.50	VP	E.P.9
P1033/G4-AD-0691236	7.75	VP	E.P.9
LYCOMING O-235-C1			
M76/AM-2-48	6.16	4.00	Auster D4
Z5960	6.50	3.06	Auster D4
LYCOMING O-290-3			
1A. 170. LL. 7647	6.33	3.92	Auster 5
FP420	6.25	4.18	Auster 4 and 5
HR1231	6.50	3.48	Auster 4 and 5
Z5594	6.00	3.67	Auster 4 and 5
Z5600	6.50	3.48	Auster 4 and 5
Z5602	6.50	3.19	Auster 4 and 5
LYCOMING O-320-A2B			
M74DMS-0-60	7.16	5.00	B121 Series 2
74DM6S5-0-60	7.16	5.00	B121 Series 2
LYCOMING O-320-B			
1A/175/GM 8052	6.66	4.33	Auster D5

Drawing No.	Diam. (ft)	Pitch (ft)	Aircraft
LYCOMING O-320-B2B			
M74DM56	6.02	4.08	Auster J5V
1A200/FAM-8043	6.66	3.58	Auster D6
1A200/FAM-8046	6.66	3.83	Auster J5V, Auster D5
LYCOMING O-320-D2C			
M74DMS-0-62	7.16	5.16	B121 Series 3
74DM6S5-0-62	7.16	5.16	B121 Series 3
LYCOMING O-360-A1A			
2D36C14/78KM-4	6.17	VP	Auster J.1.U, Auster D6, Beagle A.109
LYCOMING O-360-A2A			
1A200/FA-8240	6.83	3.33	Auster D5
1A200/FA-8243	6.83	3.58	Auster D5, Auster D6, Auster J.1.U
1A200/FA-8250	6.83	4.16	Auster D5, Auster D6, Auster J.1.U
NIAGARA 3			
Z5740	6.50	8.26	Comper Swift
PROTEUS 705, 757			
PD208/466/3	16.00	VP	Britannia Mk. 100
PROTEUS 755, 756, 757, 758, 761, 762, 765, 766, 780 and 790			
PD208/466/2	16.00	VP	Britannia 300
TPE 331-2			
HCB3TN-5C/T10282HB	8.5	VP	Skyvan 3
HCB3TN-5E/T10282HB	8.5	VP	Skyvan 3
HCB4TN-5C/T10282HB-4P	8.25	VP	Skyvan 3A
HCB3TN-5E/T10232HB	8.5	VP	Skyvan 100-81
TYNE 515-101W			
PD244/476/2	16	VP	Belfast SC5
WALTER MIKRON 2			
A66049/1X1	4.75	3.59	Tipsy Trainer
A66167/X4	5.50	3.44	Tipsy B, Tipsy Trainer
A66167/X5	5.50	3.90	Tipsy B
B66592/X1	5.25	3.56	Tipsy Trainer
LA511	5.05	3.92	Tipsy Trainer
LA553/2	5.35	3.22	Tipsy Trainer

AIRWORTHINESS NOTICE

No. 5
Issue 1
1 April 1972

Tyre Wear Limitations**1 INTRODUCTION**

- 1.1 British Civil Airworthiness Requirements require that for certification of new types of aircraft, the depth of tyre tread below which wet braking friction characteristics are impaired should be specified at the time of certification; it is also required that it should be possible to determine, in operational conditions, when the tread depth is worn below this limit.
- 1.2 This Notice provides general guidance on the subject of tyre wear limitations for operators of all public transport aeroplanes of more than 5700 kg maximum weight on the UK Register for which a limiting tyre tread depth is not otherwise available.

2 DISCUSSION

- 2.1 Accidents and incidents, resulting from both loss of braking friction and loss of directional control on wet runways, continue to occur. While the scheduled accelerate-stop and landing distances provide some allowance for deterioration in friction, it has been established that this allowance is not sufficient to maintain the required level of safety if tyres which are more than 80% worn are used in wet runway operations.
- 2.2 As it is not possible fully to allow for this by increasing the scheduled distances (because of the frequency of incidents caused by loss of directional control, even on the most favourable wheel arrangements), the CAA favours the retention of current scheduled distances, together with a recommended minimum tread depth applicable to all aircraft tyres.

- 3 RECOMMENDATION** In the absence of evidence of the safety of a lower limit for a particular aircraft/tyre/operation combination, it is recommended that a tyre be withdrawn from service when it is worn to such an extent that its wet runway performance would be seriously impaired. This may be defined as when:

- (a) It is worn such that any groove has a depth of less than 2mm of tread for more than one quarter of the tread circumference, or
- (b) at any place on the circumference the tread pattern is worn to a depth of less than 2mm across the whole width of the tread in contact with the runway.

NOTE: This is not a rigid definition and equivalence may be provided if, for example, tyre wear is such that whilst one groove is less than 2mm all the others are 3mm or more.

AIRWORTHINESS NOTICE

No. 6
Issue 57
29 September 2006

Airworthiness Publications – General Information

- 1** This Notice gives details of the various airworthiness publications which may, in general, be obtained from the CAA. Many of these are now freely available on the CAA web site at www.caa.co.uk where you may register for e-mail notification of amendments. A paper copy can be purchased from the CAA's printers. All JAA publications are available from Rapidoc, Willoughby Road, Bracknell, Berkshire RG12 8DW (Tel. (01344) 861666, Fax. (01344) 714440).
- 2** From 1 March 2005 CAA has appointed TSO (The Stationery Office) as their printers. From that date all CAA publications will be available from:
TSO, PO Box 29, Norwich NR3 1GN www.tso.co.uk/bookshop
Telephone orders/General enquiries: 0870 600 5522 E-mail: book.orders@tso.co.uk
Fax orders: 0870 600 5533 Textphone: 0870 240 3701
- 3** Enquiries regarding documents forming part of the Certificate of Airworthiness (e.g. Flight Manuals and Performance Schedules for specific types of aircraft), should be addressed to the Civil Aviation Authority, Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex RH6 0YR. Enquiries relating to responses to AAIB Safety Recommendations or UK Accident Statistics, or for documents containing information on reportable occurrences, should be addressed to the Safety Investigation and Data Department, at the above Aviation House address. Enquiries regarding the International Register of Civil Aircraft should be addressed to: Civil Aviation Authority, Aircraft Registration Section, CAA House, 45-59 Kingsway, London WC2B 6TE. Telephone: 020 7453 6666, Fax: 020 7453 6670.
NOTE: On 28 September 2003, the European Aviation Safety Agency (EASA) became responsible for the airworthiness standards for the majority of the civil aircraft registered in the Member States of the European Union. The gradual transfer from national procedures and requirements to those defined by EASA will necessitate extensive and periodic amendment of CAA publications. The first publications to be affected are:
CAP 455 Airworthiness Notices
CAP 473 Foreign Airworthiness Directives Vol I and II – CAA Additional Airworthiness Directives (withdrawn 1 September 2004)
CAP 474 Foreign Airworthiness Directives Vol III (withdrawn 31 March 2006)
CAP 480 UK Additional Requirements and Special Conditions for the certification of foreign constructed aircraft (withdrawn 1 September 2004)
CAP 747 Mandatory Requirements for Airworthiness
The amendment of CAPs will continue to be the convenient and familiar means by which the CAA will notify the applicability of UK requirements.
- 4** **AIRWORTHINESS REQUIREMENTS**
 - 4.1** **British Civil Airworthiness Requirements (BCAR).** These comprise minimum requirements and constitute the basis for the issue of approvals and certificates required by the Air Navigation Order. Appendix No. 3 to this Notice lists the constituent sections of

BCAR together with their amendment status. For a full list of current, superseded and obsolete BCARs please refer to www.caa.co.uk/publications.

4.2 **Joint Aviation Requirements (JAR)** are published on behalf of the Joint Aviation Authorities. Their status is that they are recognised (where not superseded by an associated EC Regulation Annex (Part) as listed in Appendix 3) by the Civil Aviation Authorities of the Participating European Countries as an acceptable basis for showing compliance with their National Airworthiness Codes. Some countries (including the United Kingdom) adopted certain codes as their sole National Code. Those adopted by the United Kingdom are set out in Appendix No. 3 under British Civil Airworthiness Requirements.

4.3 **European Aviation Safety Agency Certification Specifications (CS)** are published by the European Aviation Safety Agency (EASA). Their status is that they must be used as the reference standard for the certification of those aircraft which come under the auspices of EASA (a definition of the aircraft covered may be found in CAP 747 and also in CAAIP Leaflet 1-2 (CAP 562)).

The EASA Certification Specifications were developed from the Joint Aviation Requirements (JAR) and cover the same subjects. They are listed in Appendix No. 3 to this Notice.

5 **JAA ADMINISTRATIVE AND GUIDANCE MATERIAL**

Section One – General – Information Leaflets and General information.

Section Two – Maintenance – Information appertaining to the JAA's Maintenance Division.

Section Three – Certification – Information appertaining to the JAA's Certification Division.

Section Four – Operations – Information appertaining to JAA's Operations Division.

Section Five – Personnel Licensing – Information appertaining to the JAA's Licensing Division.

Section Five ATPL(A) – Information appertaining to JAA's Airline Transport Pilot's Licence (Aeroplanes) learning objectives for theoretical knowledge training.

Section Six – Synthetic Training Devices – Information appertaining to JAR-STD.

JAA Directory – Information appertaining to the structure of the JAA plus names and addresses of individuals and organisations associated with the structure.

Amendments issued three times a year are available by subscription.

5.1 Further details on JAR matters are available from the Central JAA, Saturnusstraat 10, PO Box 3000, 2130 KA HOOFFDORP, The Netherlands.

6 **CIVIL AIRCRAFT AIRWORTHINESS INFORMATION AND PROCEDURES (CAP 562)**

Civil Aircraft Airworthiness Information and Procedures (CAAIP) are published by the Civil Aviation Authority providing information on a variety of matters concerned with civil aircraft during manufacture, overhaul, repair and maintenance.

7 **AIRWORTHINESS NOTICES (CAP 455)**

7.1 Airworthiness Notices are available on the CAA web site at www.caa.co.uk under the heading Publications, where you may also register for e-mail notification when Notices are re-issued.

7.2 Paper copies of Airworthiness Notices and a Standing Order service for amendments are available from TSO (The Stationery Office). See paragraph 2 of this Notice for contact details.

7.3 Suitable binders for filing the Notices are available to buy from the CAA's printers, see inside cover for details, or any good stationers.

8 AIRWORTHINESS INFORMATION LEAFLETS

- 8.1 Airworthiness Information Leaflets (AILs) were transferred to CAP 562 (Civil Aircraft Airworthiness Information and Procedures (CAAIP)) on 31 August 2006.

9 THE INTERNATIONAL REGISTER OF CIVIL AIRCRAFT

- 9.1 The International Register of Civil Aircraft holds official information from the aircraft registers of many of the world's countries. The information is held on a database which is updated quarterly by direct submissions from over 50 countries including USA. Currently, details on over 415,000 aircraft are held on the database. The degree of information held for each aircraft varies according to the amount of data supplied by the relevant national authority. Full information is held for most aircraft and comprises such information as registration marks, aircraft type, registered owners and their addresses, airworthiness details, aircraft weights and aircraft capacity.
- 9.2 The International Register of Civil Aircraft is targeted at meeting the information needs of people and companies whose businesses and interests revolve around the national and international aviation industries, in particular airports, the financial services sector, the legal profession, the insurance market, the engineering sector and the marketing sector.
- 9.3 The Basic version of the International Register of Civil Aircraft is published on the internet at www.aviation-register.com and on CD-ROM. The CD-ROM is published quarterly in two versions, the Basic and Extensive versions. Both versions are fully featured databases with sophisticated search functions.
- 9.4 The Extensive version of the CD-ROM allows extensive data manipulation by the user. Information from the database can be downloaded to word-processors, spreadsheets or other database programs. Users are able to produce their own customised mail-outs and reports or source market survey information according to personal requirements.
- 9.5 The Basic version has the full functionality of the Extensive version but does not allow the user to download data for manipulation in other applications.
- 9.6 Credit card (other than Diners Club and American Express cards) and debit card orders may be made by telephone or fax to the numbers mentioned below. Payment by cheque is also acceptable. A separate price list and order form can be obtained from the address below.

Aircraft Registration Section

Civil Aviation Authority

CAA House

45-59 Kingsway

London WC2B 6TE

Telephone: 020 7453 6666

Facsimile: 020 7453 6670

e-mail: aircraft.reg@srg.caa.co.uk

10 UNITED KINGDOM REGISTER OF CIVIL AIRCRAFT INFORMATION SERVICES

- 10.1 The UK Register of Civil Aircraft contains specific information on over 16,000 aircraft registered in the United Kingdom. The Aircraft Registration Section at the CAA administers the system and continuously updates information on registered aircraft that change registration details each year. Much of the information held on the Register is available to the public and industry.
- 10.2 The Aircraft Registration Section of the Civil Aviation Authority markets a number of products and services relating to information on the UK Register of Civil Aircraft.
- 10.3 G-INFO is a comprehensive single source database of civil aviation in the UK offering data taken directly from the official UK Register of Civil Aircraft, information which is accurate as of the first day of each month.

Supplied on CD-ROM, G-INFO will run on PCs running Windows 3.1 or higher, it requires approximately 10 Mb of hard disk space. It is available on a one-off basis, or, by annual subscription, on a monthly or quarterly basis.

- 10.4 G-INFO comes in two formats:
- (a) **G-INFO (full version)** replicates information held against each aircraft on the UK Register of Civil Aircraft including all registered ownership and technical details for each aircraft registered in the UK. Information can be retrieved by making searches on individual fields such as registration mark, aircraft type or serial number, and users are able to make use of sophisticated filter options for more precise and defined searches. Users are able to produce their own customised mail-outs and reports or source market survey information according to personal requirements.
 - (b) **G-INFO 'LITE'** This has the full functionality of G-INFO but does not allow the user to download data for manipulation in other applications.
- 10.5 The CAA website also contains the G-INFO database and the same information at www.caa.co.uk/srg/aircraftregister/ginfo/search. It is upgraded nightly.
- 10.6 **PRINTED REPORTS AND MAILING LABELS** Printed reports of extracts from the UK Register of Civil Aircraft and mailing lists (in the form of pre-printed adhesive labels) of current registered owners are also available on an ad hoc basis.
- 10.7 **PUBLIC ACCESS** The UK Register of Civil Aircraft database is available, via a computer terminal, at the Aircraft Registration Section between 1000 hr and 1600 hr on every working day.
- 10.8 **TELEPHONE ENQUIRIES (0906) 8515747** A telephone service is available on the above number between 0900 and 1700 hr every working day to obtain information on individual aircraft. Calls are charged at current BT premium call rates.
- 10.9 Credit card (other than Diners Club and American Express cards) and debit card orders may be made by telephone or fax to the numbers mentioned in paragraph 9.6. Payment by cheque is also acceptable. A separate price list and order form can be obtained from the Aircraft Registration Section, see paragraph 9.6 for address details.
- 11 CAA APPROVED ORGANISATIONS (CAP 475)**
- 11.1 This is a list of Organisations, approved by the UK CAA under the Air Navigation Order and European Aviation Safety Agency (EASA). It is re-issued six times a year and published on the CAA web site.
- 11.2 Paper copies including binders may be purchased from the CAA's printers. See details on inside cover of this CAP.
- 12 SYLLABUSES OF EXAMINATION FOR AIRCRAFT ENGINEERS**
- 12.1 **Aircraft Maintenance Engineers' Licence** The syllabus for this is contained in Section L of the British Civil Airworthiness Requirements (CAP 468).
- 13 FOREIGN AIRWORTHINESS DIRECTIVES**
- 13.1 **Foreign Airworthiness Directives Volumes I and II – CAA Additional Airworthiness Directives (CAP 473)** This publication has been withdrawn. Data applicable to products of US design should be obtained from the FAA. Website: www.airweb.faa.gov. CAA Additional Airworthiness Directives published previously in CAP 473, that remain in force, are published in CAP 747.
- 13.2 **Foreign Airworthiness Directives Volume III (CAP 474)** This publication has been withdrawn. At final issue CAP 474 lists Foreign Airworthiness Directives published before October 2004 that are applicable to aircraft, engines, propellers and equipment designed outside the USA and the UK. Foreign Airworthiness Directives should be obtained directly from the State of Design of the product in question. CAA Additional Airworthiness Directives published previously in CAP 474 that remain in force are published in CAP 747.

14 MANDATORY AIRCRAFT MODIFICATIONS AND INSPECTIONS SUMMARY (CAP 476)

This publication will no longer be amended. At final issue CAP 476 lists with their associated Airworthiness Directive numbers, modifications, inspections and Service Bulletins declared mandatory by the CAA before October 2004. All CAA Airworthiness Directives issued after that date are published in CAP 747. Deletions from CAP 476 at final issue will be notified in CAP 747.

15 MANDATORY REQUIREMENTS FOR AIRWORTHINESS (CAP 747) This publication is the primary reference document for all Airworthiness Directives and other Mandatory Airworthiness Information applicable to aircraft registered in the UK.**16 AIRCRAFT RADIO EQUIPMENT (CAP 208)**

16.1 This publication has been withdrawn. The Air Navigation Order 2005 Article 20(5) requires all radio and radio navigation equipment installed in or carried on aircraft registered in the United Kingdom to be of a type approved by the Civil Aviation Authority in relation to the purpose for which it is to be used.

- (a) **Volume 1: Minimum Performance Requirements (second edition January 1991, last reprint October 1996, but now out of print)** CAP 208 Volume 1 is now considered to be obsolete in that it no longer represents the minimum performance requirements that the Civil Aviation Authority applies to radio equipment approvals. The document has historical value as the basis of approval of radio equipment which is still approved.

For the minimum performance requirements to be applied to radio equipment reference should be made to CS-ETSO (European Technical Standard Orders), published by EASA, which outlines the relevant EUROCAE or RTCA minimum operational performance standards for the different types of equipment.

- (b) **Volume 2: Radio Equipment Approved for Use in United Kingdom Registered Civil Aircraft (third edition, August 1995 last reprint December 1999 – but now out of print)** CAP 208 Volume 2 is now considered to be obsolescent in that it no longer represents a complete and definitive record of aircraft radio equipment approved by the Civil Aviation Authority which may currently be used in aircraft radio installations. The document has historical value as the record of radio equipment which has been approved.

Information on aircraft radio equipment approvals is now available on the CAA web site at www.caa.co.uk/srg/airworthiness/aea. If you have any queries concerning aircraft radio equipment approvals, please contact the Safety Regulation Group, Engineering Department by:

telephone on 01293 573138 (alternative number 01293 573134); or

fax on 01293 573975; or

e-mail to aircraft.systems@srg.caa.co.uk.

CAP 208 Volume 2 lists radio equipment approved, according to the general approval procedures given in BCAR A4-8 (CAP 553) and B4-8 (CAP 554) together with BCAR Section R (CAP 472), by the Civil Aviation Authority for use in UK registered civil aircraft and indicates, where appropriate, the purposes for which it may be used. This volume was last updated in September 1999.

NOTE: CAP 208 Volume 2 does not include radio equipment approved by National Aviation Authorities of JAA Member States under JAR-21, or radio equipment approved by EASA under Part-21. Reference should be made to the Lists of ETSO Authorisations and JTSO Authorisations published on the EASA website.

17 TYPE CERTIFICATE DATA SHEETS These Data Sheets constitute the documentation associated with Type Certificates which are issued by the CAA to signify approval of the design of certain types of aircraft. The data sheets are published on the CAA web site at www.caa.co.uk/srg/airworthiness/certification.

NOTE: The description Type Certificate Data Sheet is only applicable to Type Certificates for aircraft. Type Certificates are also issued for engines but the associated data sheets are described as Engine Type Certificate Data Sheets.

18 LIGHT AIRCRAFT MAINTENANCE SCHEME

18.1 **Light Aircraft Maintenance Schedules** These Maintenance Schedules have been prepared for use with aeroplanes and helicopters the MTWA of which does not exceed 2730 kg. Separate Schedules, approved by the CAA, are available for aeroplanes (CAP 411) and helicopters (CAP 412) (see also Generic Requirement No.15 in CAP 747 – Mandatory Requirements for Airworthiness).

18.2 **Light Aircraft Maintenance (CAP 520)** This publication provides general guidance on the implementation of the light aircraft maintenance scheme (LAMS) for aircraft not exceeding 2730 kg MTWA, with a Certificate of Airworthiness in the Transport, Aerial Work or Private Category (see also Generic Requirement No.15 in CAP 747 – Mandatory Requirements for Airworthiness).

19 LOG BOOKS

The following are available:

Aircraft Maintenance Engineer's Log Book – CAP 741

Aircraft Exceeding 2730 kg MTWA

Aircraft Log Book – CAP 408

Engine Log Book – CAP 391

Variable Pitch Propeller Log Book – CAP 388

Modification Record Book – CAP 395

Aircraft Not Exceeding 2730 kg MTWA

Aircraft Log Book – CAP 398

Engine Log Book – CAP 399

Variable Pitch Propeller Log Book – CAP 400

Time Limited Task and Component Change Record – CAP 543

20 OCCURRENCE REPORTING SCHEME

20.1 **The Mandatory Occurrence Reporting Scheme – Information and Guidance (CAP 382)** The Mandatory Reporting legislation is contained within the Air Navigation Order and Regulations. The scheme is fully described in CAP 382 and CAAIP (CAP 562) Leaflet 1-3. Pads of CAA Occurrence Report Forms (CA 1673) may be obtained free of charge from Alpha Office Ltd., tel: 01342 323866, e-mail: general@alpha-office.co.uk.

20.2 **Progress Report – CAA Response to Air Accidents Investigation Branch (AAIB) Safety Recommendations** These Reports are published annually in response to the Secretary of State for Transport's request to the Authority for Reports on the status and progress on its responses to the Recommendations made to the Authority by the Air Accidents Investigation Branch. Each Report contains those Recommendations remaining Open from the previous report and any new Recommendations received by the CAA since its publication.

20.3 **Occurrence Publications** These contain summarised information derived from occurrence reports covering not only airworthiness but a broad field of aircraft incidents and defects which could affect the safe operation of aircraft. The documents which are available are:

(a) **The Digest**

(b) **New Reportable Occurrences** – issued monthly in 3 sections, as under:

- Fixed Wing Occurrences
- Rotary Wing Occurrences
- ATC Occurrences

(c) **Follow-up Action on Occurrence Report (FACTOR)** – issued as required.

20.4 Any or all of these publications are made available without charge to any UK organisation participating in the Occurrence Reporting Scheme e.g. UK Operators, Aircraft Maintenance or manufacturing organisations, ATC Units or organisations, Airfield management etc. The publications are also available by annual subscription to any individuals or organisations worldwide who can show a legitimate interest in flight safety, as defined in the CAA Regulations. For details of eligibility and prices, applications should be made in accordance with Paragraph 2.

21 GENERAL AVIATION SAFETY INFORMATION LEAFLET (GASIL) Issued four times a year. This Leaflet contains summaries of the more serious occurrences affecting general aviation aircraft and operations. Factual information, CAA comments and, when appropriate, advice on remedial or preventative measures, are included. In addition it contains other items of interest to general aviation including airspace information. A Helicopter Section, CAA News and an Engineering Section are included. Leaflets on specific subjects and posters are included from time to time. A listing with brief details of all General Aviation occurrences received by the Safety Investigation and Data Department during the previous 8 weeks is also included.

22 AIR NAVIGATION – THE ORDER AND REGULATIONS The Statutory Instruments concerned with Air Navigation are published by Her Majesty’s Stationery Office and are obtainable from The Stationery Office, PO Box 276, London SW8 5DT. The publishing responsibility for the Loose Leaf Edition of these documents has been transferred from The Stationery Office to CAA. A CAA Edition (CAP 393), contains the Air Navigation Order, the Rules of the Air, the Air Navigation (General) Regulations and other associated documents.

23 UK ADDITIONAL REQUIREMENTS AND SPECIAL CONDITIONS FOR THE CERTIFICATION OF FOREIGN CONSTRUCTED AIRCRAFT (CAP 480) This publication has been withdrawn. Requirements published previously in CAP 480, that remain in force, are published in CAP 747.

24 CONDITION MONITORED MAINTENANCE: AN EXPLANATORY HANDBOOK (CAP 418) This publication provides general information and guidance on the concepts and practices of aircraft maintenance control by the use of Condition Monitoring; this is a process in which in-service information is collected and analysed on a continuing basis, as a means of implementing corrective procedures.

25 CAA AIRWORTHINESS SPECIFICATIONS

25.1 The CAA recognises certain general Industry Specifications dealing with aeronautical products (e.g. BSI Specifications). However, over a number of years it has become necessary for the CAA also to issue certain Specifications, where no suitable Industry Specification has been developed.

No. 1	Safety Belts	Issue 6	12 Mar. 2004
No. 2	Inflatable Liferrafts	Issue 2	1 Nov. 1985
No. 5	Inflatable Lifejackets	Issue 2	23 Nov. 1979
No. 6	Escape Chutes	Issue 2	21 June 1956
No. 7	Break-in Points	Issue 2	8 Aug. 1962
No. 9	Child’s Flotation Cot	Issue 1	9 April 1957
No. 10	Flight Data Recorder Systems	Issue 1	1 May 1974
No. 10A	Flight Data Recorder for Aeroplane Accidents Investigation	Issue 1	1 June 1990
No. 11	Cockpit Voice Recorder Systems	Issue 3	13 Aug. 1983

No. 12	Underwater Sonar Location Devices Approval, Installation and Maintenance	Issue 1	1 May 1974
No. 14	Ground Proximity Warning Systems	Issue 2	Sept. 1976
No. 15	Public Address Systems	Issue 1	27 Jan. 1989
No. 16	Automatically Deployable Emergency Locator Transmitters for Helicopters	Issue 2	1 Dec. 1991
No. 17	Aeroplane Wheels and Wheel Brake Assemblies Minimum Performance Standards	Issue 1	18 Sept. 1986
No. 18	Flight Data Recorder for Helicopter Accident Investigation	Issue 1	1 June 1990
No. 19	Helicopter Crew Member Immersion Suits	Issue 1	15 April 1991
No. 20	Passenger Protective Breathing Equipment (PPBE) Smoke Hoods	Issue 1	9 May 1988
No. 21	Helicopter Public Address Systems	Issue 1	28 March 1998
No. 22	Global Positioning Systems (GPS) for use in Rotorcraft for En-route Navigation	Issue 1	25 April 2005

25.2 It should be noted that for aircraft subject to regulation by EASA only new, or newly modified, parts and appliances would need to meet the airworthiness specifications contained within CS-ETSO. For new, or newly modified, parts and appliances installed on aircraft subject to UK national certification the CAA would accept compliance with the relevant CS-ETSO as an alternative to compliance with the CAA Airworthiness Specification.

26 AIR OPERATORS' CERTIFICATES – ARRANGEMENTS FOR ENGINEERING SUPPORT (CAP 360, PART TWO) This document has been withdrawn. JAR-OPS Subpart P and/or CAP 648 / 649, Specimen A to B Standard Operations Manual Aeroplanes / Helicopters, should be consulted.

27 MASTER MINIMUM EQUIPMENT LISTS (MMEL)

27.1 The MMEL defines those systems and items of equipment which may be unserviceable at the commencement of a flight. Civil Aviation Publication (CAP) 549 defines and explains the CAA policy in regard to MMELs and provides guidelines for manufacturers in the preparation of an MMEL.

27.2 The aircraft types for which there are currently CAA approved MMELs (including MMELs not produced by the CAA) are listed in the Publications area of the CAA web site at www.caa.co.uk. Electronic copies of MMELs produced by the CAA can be downloaded from this web site address.

28 MANDATORY PERMIT DIRECTIVES (CAP 661) For aircraft operating on a Permit to Fly. Contains Mandatory Permit Directives that are required to be complied with by UK Operators of Permit to Fly aircraft. Revisions are issued twice a year. The date of the next amendment to CAP 661 can be found on the Revision Transmittal Sheet for the CAP.

29 AMATEUR BUILT AIRCRAFT (CAP 659): A GUIDE TO THE APPROVAL, CONSTRUCTION AND OPERATION OF AMATEUR BUILT AIRCRAFT

This, the second edition of CAP 659 is a complete revision of the original publication. The CAP has been brought up to date to reflect the latest practices in the regulation of amateur built aircraft as well as to reflect the recent changes to aviation safety regulation brought about by the formation of the European Aviation Safety Agency (EASA). The content of the CAP has been substantially expanded from the previous edition and rewritten in plain language.

In updating the CAP CAA have recognised that the construction of an aircraft with the eventual aim of flying it follows two distinct but interrelated parallel paths: physical construction and satisfying legislative requirements. With the latter aim in mind the CAP is intended to answer most, if not all, of the "How do I ...?" variety of questions, as well as advising how to avoid many of the regulatory pitfalls and blind alleys that can seriously frustrate if not terminate an amateur built aircraft project. Also, CAA have taken note of the USA's impact on the amateur built aircraft movement.

The USA is the largest exporter of kit aircraft for amateur building and the origin of most of the plans used by amateur builders. CAA have taken the opportunity to harmonise, where possible, their advice and practices with those of the Federal Aviation Administration (FAA). To this end the second edition follows the format and where appropriate the content of the FAA Advisory Circulars (ACs) 20-27F, Certification and Operation of Amateur Built Aircraft and 20-139, Commercial Assistance During Construction of Amateur Built Aircraft.

The CAP therefore describes, under one cover and in a logical step by step approach, all of the CAA's policies and procedures, appropriate to the award of a Permit to Fly for an amateur constructed aircraft.

30

CANCELLATION This Notice cancels Airworthiness Notice No. 6, Issue 56, dated 29 March 2006, which should be destroyed.

AIRWORTHINESS NOTICE No. 6**Appendix 3***Issue 22**29 September 2006***British Civil Airworthiness Requirements (BCAR), Joint Aviation Requirements (JAR) and European Aviation Safety Agency (EASA) Regulation/Certification Specification Status****Table 1: BCARs**

	Title	Issue No.	Date	Revision Papers	Notes
Section A	Airworthiness Procedures Where the CAA Has Primary Responsibility for Type Approval of the Product (CAP 553)	6	31 Jan 2003	Amendment 1/2003 + Correction	
Section B	Airworthiness Procedures Where the CAA Does Not Have Primary Responsibility for Type Approval of the Product (CAP 554)	6	31 Jan 2003	Amendment 1/2003 + Correction	
Section L	Licensing (CAP 468)	15	Feb 2003		
Section M	Emissions Certification (CAP 514)				Replaced by ICAO Annex 16 Volume 1 and 2 on 5 April 2002. Superseded by EASA CS-34
Section N	Noise (CAP 469)				Replaced by ICAO Annex 16 Volume 1 and 2 on 5 April 2002. Superseded by EASA CS-36
Section Q	Non-Rigid Airships (CAP 471)	2	26 Feb 2001		Issue 2 is a final issue of BCAR Q. To be superseded by EASA CS-30
Section R	Radio (CAP 472)	4	1 April 1974	727, 729 and corrigendum 1	
Section S	Small Light Aeroplanes (CAP 482)	3	18 Aug 2003		See also JAR-VLA and EASA-VLA
Section T	Light Gyroplanes (CAP 643)	3	12 Aug 2005		See also JAR-VLR and EASA-VLR
BCAR 31	Manned Free Balloons (CAP 494)	2	12 May 2003		Issue 2 is a final issue of BCAR 31. To be superseded by EASA CS-31HB

Table 2: JARs

	Title	Issue No.	Date	Revision Papers	Notes
JAR-1	Definitions and Abbreviations	Amdt 6	1 Nov 2004	1/97/1, 1/99/1	Superseded by EASA CS-1.
JAR-21	Certification Procedures for Aircraft and Related Products and Parts	Amdt 6	1 Nov 2004		Superseded by EASA Part 21 and AMC / GM to Part 21.
JAR-22	Sailplanes and Powered Sailplanes	Amdt 8	1 Nov 2004		Superseded BCAR Section E on 1 November 1980. Replaced by EASA CS-22.
JAR-23	Normal, Utility, Aerobatic, and Commuter Category Aeroplanes	Amdt 2	1 Nov 2004		Replaced BCAR-23* which itself replaced BCAR Section K* on 11 December 1987. Superseded by EASA CS-23.
JAR-25	Large Aeroplanes	Amdt 17	1 Nov 2004		Replaced BCAR Section D* on 1 July 1979. Superseded by EASA CS-25.
JAR-26	Additional Airworthiness Requirements for Operators	Amdt 3	1 Dec 2005		
JAR-27	Small Rotorcraft	Amdt 4	1 Nov 2004		Superseded by EASA CS-27.
JAR-29	Large Rotorcraft	Amdt 4	1 Nov 2004		Replaced BCAR-29* on 5 November 1993 which itself replaced BCAR Section G* on 17 December 1986. Superseded by EASA CS-29.
JAR-34	Aircraft Engine Emissions	Amdt 1	1 Nov 2004		Superseded by EASA CS-34 / Part 21.
JAR-36	Aircraft Noise	Amdt 1	1 Nov 2004		Superseded by EASA CS-36 / Part 21.
JAR-39	Airworthiness Directives	Issued	1 Jan 2003		Superseded by EASA CS-39 / Part 21.
JAR-66	Certifying Staff Maintenance	Amdt 1	1 Nov 2004		Superseded by EASA Part 66.

Table 2: JARs

	Title	Issue No.	Date	Revision Papers	Notes
JAR-145	Approved Maintenance Organisations	Amdt 6	1 Nov 2004		Adopted on 1 January 1992 as an alternative code for the Approval of Maintenance Organisations engaged in the maintenance of Aircraft in the Transport (Passenger and Cargo) category or when used for Commercial Air Transport. Superseded by EASA Part 145.
JAR-147	Approved Maintenance Training/Examinations	Amdt 2	1 Nov 2004		Superseded by EASA Part 147.
JAR-APU	Auxilliary Power Units	Amdt 4	1 Nov 2004		Superseded by EASA CS-APU.
JAR-AWO	All Weather Operations	Amdt 3	1 Nov 2004		Superseded by EASA CS-AWO.
JAR-E	Engines	Amdt 13	1 Nov 2004		With JAR-P replaced BCAR Section C* on 1 January 1984. Superseded by EASA CS-E.
GAI-20	Joint Advisory Material - Advisory Circular Joint	Amdt 2	1 Nov 2004		Superseded by EASA AMC-20
JAR-MMEL-MEL	Master Minimum Equipment List/Minimum Equipment List	Amdt 1	1 Aug 2005		
JAR-P	Propellers	Amdt 8	1 Nov 2004	P/96/1	With JAR-E replaced BCAR Section C* on 1 January 1984. Superseded by EASA CS-P.
JAR-VLA	Very Light Aeroplanes	Amdt 1	1 Nov 2004	VLA/91/1 VLA/92/1	Superseded by EASA CS-VLA.
JAR-VLR	Very Light Rotorcraft	Amdt 1	1 Nov 2004		Superseded by EASA CS-VLR.
JAR-TSO	Joint Technical Standard Orders	Amdt 7	1 Nov 2004		Adopted as an optional code.

Table 3: EASA

	Title	Issue No.	Date	Revision Papers	Notes
EASA CS-Definitions	Definitions and Abbreviations in Certification Specifications	Issued	05 Nov 2003		Replaces JAR-1
EASA CS-22	Certification Specifications for airworthiness of Sailplanes and Powered Sailplanes	Issued	14 Nov 2003		Replaces JAR-22
EASA CS-23	Certification Specifications for Normal, Utility, Aerobatic, and Commuter Category Aeroplanes	Issued	14 Nov 2003		Replaces JAR-23
EASA CS-25	Certification Specifications for Airworthiness of Large Aeroplanes	Amdt 1	12 Dec 2005		Replaces JAR-25
EASA CS-27	Certification Specifications for Small Rotorcraft	Issued	14 Nov 2003		Replaces JAR-27
EASA CS-29	Certification Specifications for Large Rotorcraft	Issued	14 Nov 2003		Replaces JAR-29
EASA CS-30	Certification Specifications for Airships	Not yet issued			
EASA CS-31HB	Certification Specifications for Hot Air Balloons	Not yet issued			
EASA CS-34	Engine Emissions and Fuel Venting	Issued	17 Oct 2003		Replaces JAR-34. See also Part 21
EASA CS-36	Aircraft Noise	Issued	17 Oct 2003		Replaces JAR-36. See also Part 21
EASA CS-APU	Certification Specifications for Auxiliary Power Units	Issued	17 Oct 2003		Replaces JAR-APU
EASA CS-AWO	Certification Specifications for All Weather Operations	Issued	17 Oct 2003		Replaces JAR-AWO
EASA CS-E	Certification Specifications for Engines	Issued	24 Oct 2003		Replaces JAR-E
EASA CS-P	Certification Specifications for Propellers	Issued	24 Oct 2003		Replaces JAR-P

Table 3: EASA

	Title	Issue No.	Date	Revision Papers	Notes
EASA CS-ETSO	European Technical Standard Orders	Amdt 1	18 July 2006		Replaces JAR-TSO
EASA CS-VLA	Certification Specifications for Very Light Aircraft	Issued	14 Nov 2003		Replaces JAR-VLA
EASA CS-VLR	Certification Specifications for Very Light Rotorcraft	Issued	14 Nov 2003		Replaces JAR-VLR
EASA Part 21	Certification of Aircraft Products, Parts and Appliances	Amdt	8 May 2006	Amdt EC No. 706/2006	Replaces JAR-39
EASA Part-66	Certifying Staff	Issued	20 Nov 2003		Replaces JAR-66
EASA Part-145	Maintenance Organisation Approval	Issued	20 Nov 2003		Replaces JAR-145
EASA Part-147	Training Organisation Requirements	Issued	20 Nov 2003		Replaces JAR-147
EASA Part-M	Continuing Airworthiness Requirements	Issued	20 Nov 2003		
EASA AMC-20	General Acceptable Means of Compliance (AMC)	Issued	05 Nov 2003		Replaces GAI-20

* Codes which have been replaced will not be subject to amendment, but are available for modifications to, and derivatives of, existing products. Moreover, the earlier codes are still valid for many in-service aircraft (e.g. Section D is applicable to the Lockheed L1011 Tristar) as the Part codes have been applied only to those aircraft certifications conducted after the date of adoption of the Parts.

A notification of amendment service covering Sections A, B, L, Q, R, S, T and BCAR 31 and including re-issues and amendments but not issues of new Sections, is provided to all purchasers of these publications from the CAA's printers, or it is available by registering for e-mail notification on the CAA web site.

AIRWORTHINESS NOTICE

No. 7
Issue 3
29 September 2006

Implementation of the European Parliament Regulation and Council of the European Union Regulations**1 INTRODUCTION**

- 1.1 European Community Member States are required to enforce European Parliament Regulation and Council of the European Union Regulations. The UK Government enforces the aviation regulations by requiring that the UK Civil Aviation Authority (CAA) ensure compliance by the UK aviation sector.
- 1.2 This Airworthiness Notice No. 7 provides information on the implementation of the Regulations for organisations and persons engaged in the continuing airworthiness of aircraft and aeronautical products, parts and appliances.

2 APPLICABILITY

- 2.1 This Notice is of particular relevance to licensed aircraft engineers, aircraft owners and operators, organisations approved for the maintenance of aircraft and organisations approved to recommend the renewal of a Certificate of Airworthiness.

3 CONTENT

- 3.1 This Airworthiness Notice includes the following Appendices to summarise the particular aspects of implementation:
- | | |
|------------|---------------------------------------------------------------------------------------------------|
| Appendix 1 | Part-145 |
| Appendix 2 | Part-M |
| Appendix 3 | Certificate of Airworthiness Issue and Renewal and Associated Continuing Airworthiness Procedures |
| Appendix 4 | Part-66 |
| Appendix 5 | Part-147 |

4 HISTORY**4.1 European Aviation Safety Agency (EASA)**

EASA commenced operation on 28 September 2003 and over a 42-month transition period will be assuming many of the functions currently undertaken by the National Aviation Authorities (NAA) of the EU Member Nations. EASA is currently recruiting staff to carry out its intended function, but in the interim, to ensure that the certification and continuing airworthiness of aircraft, aeronautical products, parts and appliances, organisations and personnel is not disrupted, transition provisions have been made. These include the phased implementation of EASA regulations and the delegation of certain functions to Member States and to the Joint Aviation Authority (JAA) for defined periods. Consequently, some aspects of the regulation of continuing airworthiness functions will not change for some time.

Information regarding the Agency and the Regulations may be found on the EASA web site at www.easa.europa.eu.

5 LEGISLATION

5.1 Regulation (EC) No 1592/2002

This Regulation established EASA, the common rules and essential requirements for airworthiness and provided EASA with its functions. The Regulation does not apply to aircraft engaged in military, customs, police or similar activities (Article 1.2), or to aircraft classified in accordance with Annex II (Article 4.2).

The certification of the excluded aircraft and products, parts and appliances embodied on such aircraft are not the subject of this Notice. Similarly, the organisation and personnel certification requirements for excluded aircraft are not within the scope of this Notice. Subject to future legislative changes, such certification will remain in accordance with British Civil Airworthiness Requirements (BCAR).

5.2 Regulation (EC) No 1702/2003

This Regulation establishes implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations. Article 5 brings into force the Regulation, including derogations permitting phased transition to full compliance. The Annex to the Regulation is comprised of Part 21 for the certification of aircraft, related products, parts, appliances and of design and production organisations. The Part 21 Annex was developed from the JAA Requirement JAR-21 and further information on the implementation of this Part can be found on the CAA web site at www.caa.co.uk.

This Airworthiness Notice addresses some specific sub-Parts of the rule, in particular those connected with the issue and renewal of Certificates of Airworthiness.

5.3 Regulation (EC) No 2042/2003

This Regulation establishes implementing rules for the continuing airworthiness of aircraft and aeronautical products, parts, appliances and for the approval of organisations and personnel involved.

Article 7 brings this Regulation into force, including derogations permitting phased transition to full compliance. The Annexes attached to the Regulation are as follows:

Annex I	Part-M - continuing airworthiness requirements
Annex II	Part-145 – approval of maintenance organisations – commercial air transport and large aircraft
Annex III	Part-66 – certifying staff – aircraft maintenance licence
Annex IV	Part-147 – training organisation requirements.

5.4 Regulation Structure

5.4.1 There are three levels of regulatory structure as follows:

- (a) Legally binding rules contained in the Annexes to the Regulations.
- (b) Acceptable Means of Compliance (AMC).
- (c) Guidance Material (GM).

5.4.2 Each Annex (Part) is divided into two sections as follows:

- (a) Section A defines the requirements for industry to comply with, e.g. for the issue of an airworthiness certificate and the conditions for it to remain valid.
- (b) Section B defines the procedures a competent authority shall follow for the purposes of issuing and maintaining certificates, e.g. organisation approvals in accordance with Section A to Part-145. The UK CAA is the competent authority for organisations located in the UK and is also contracted to EASA to provide oversight of certain organisations located outside the territory of the Member States which are the primary responsibility of EASA.

5.5 Air Navigation Order, CAA Requirements and Maintenance Standards

Appropriate amendments are being made to the UK Air Navigation Order to take account of the changes brought about by the implementation of the EC Regulations. Changes to

BCAR will also be made where necessary. Some aircraft are not within the scope of the EC Regulation and these require the retention of existing UK legislation. Maintenance standards in the UK are contained in a number of documents, e.g. CAP 562 - Civil Aircraft Airworthiness Information and Procedures, CAP 411/412 - Light Aircraft Maintenance Schedule, these standards remain applicable to UK Registered aircraft until adoption of equivalent European Standards.

6**CANCELLATION**

This Notice cancels Airworthiness Notice No 7, Issue 2, dated 29 March 2006, which should be destroyed.

AIRWORTHINESS NOTICE No. 7**Appendix 1***Issue 3**29 September 2006***Part-145 – Approval of Organisations for the Maintenance of Commercial Air Transport Aircraft and Large Aircraft****1 INTRODUCTION**

- 1.1 As detailed in Regulation (EC) No. 1592/2002 Article 15(2) (b)(iii) all foreign maintenance approvals are the responsibility of the EASA. Foreign maintenance organisation approvals currently administered by the CAA will continue to be administered by the CAA on behalf of EASA for the time being.
- 1.2 Annex II to Regulation (EC) No. 2042/2003 details the requirements for Part-145 Approvals. This regulation consists of a transposition of JAR-145 at amendment 5 dated 1 January 2003, with some additional changes. These changes were introduced as a result of:
- (a) Levels of text between regulation and AMC being assessed.
 - (b) Changes for consistency of terminology within the EU framework.
 - (c) Changes to ensure consistency with Parts M, 66 and 147.
 - (d) Inclusion of JAA maintenance Temporary Guidance Leaflets into the regulation or the associated AMC material.

2 APPLICABILITY

Regulation (EC) No. 2042/2003 Article 4 states that organisations involved in the maintenance of large aircraft or of aircraft used for commercial air transport, and components intended for fitment thereto, shall be approved in accordance with the provisions of Annex II (Part-145).

NOTE 1: For the purpose of this regulation a "large aircraft" means an aeroplane with a maximum take-off mass of more than 5700 kg, or a multi-engine helicopter.

NOTE 2: Large aircraft not used for commercial air transport must be maintained by a Part-145 organisation by 28 September 2008 (refer to Regulation (EC) No. 2042/2003 Article 7 paragraph 3 (a)).

3 EFFECTIVE DATE

The Regulation (EC) No. 2042/2003 entered into force on 29 November 2003 and includes Annex II that is known as Part-145. Certain paragraphs of Part-145 have derogations that allow a longer transition period and these are detailed below.

4 DEROGATIONS

By way of derogation from the regulation, the CAA has elected not to apply the following paragraphs of Part-145 until the dates as follows:

Compliance by 28 September 2008:

Part 145.A.30 (g)	Line maintenance certifying staff for aircraft at or below 5700 kg to be Part-66 qualified.
Part 145.A.30 (h)(1)	Base maintenance certifying staff and B1 and B2 support staff for multi-engine helicopters at or below 5700 kg to be Part-66 qualified.
Part 145.A.30 (h) (2)	Base maintenance certifying staff and B1 and B2 support staff for aircraft at or below 5700 kg to be Part-66 qualified.

5 IMPLEMENTATION POLICY

Any new applicants for organisation approval will have to comply in full with Part-145 before the approval can be issued.

A copy of a guidance document named "Anybodies Exposition" is available for applicants for a Part-145 approval to assist in compliance with Part 145.70. It is published in electronic form by the CAA and is available from the assigned CAA Surveyor.

6 APPROVED ORGANISATIONS LOCATED OUTSIDE EU MEMBER STATES

Whilst EASA are responsible for the approval of maintenance organisations located outside the territory of EU member states, the administration of those approvals for which the UK CAA has been contracted by EASA to conduct the technical investigation will be as follows:

- (a) Approval certificates will be issued by EASA on receipt of a recommendation made by the CAA. The Approval certificates will no longer have an expiry date, but will still need a recommendation for the continuation of the approval every two years.
- (b) Occurrence reports must be sent to EASA as well as the CAA.
- (c) Applications for changes (variations) to an approval administered by CAA, are to be sent to the CAA.
- (d) The Maintenance Organisation Exposition (MOE) and all amendments should be sent to the CAA for approval.

NOTE 1: New applicants for Part-145 approval located outside of the territory of EU member states must apply to EASA and not to the UK CAA.

NOTE 2: Organisations located in the Isle of Man and the Channel Islands are considered to be outside of the territory of EU Member States for the purposes of this regulation. The CAA will continue to administer these approvals issued prior to 29 November 2003 on behalf of EASA.

Airworthiness Notice No 7**Appendix 2***Issue 3**29 March 2006***Part-M – Continuing Airworthiness Requirements****1 INTRODUCTION**

- 1.1 Regulation (EC) No 2042/2003 Annex 1 (Part-M) establishes the common technical requirements and administrative procedures for ensuring the continuing airworthiness of aircraft. This includes the maintenance of aircraft and the processes and controls that apply to ensure a Certificate of Airworthiness remains valid. It also specifies the conditions to be met by persons or organisations involved in the continuing airworthiness management of aircraft.

2 COMPOSITION

- 2.1 Regulation (EC) No 2042/2003 Annex 1 Part-M comprises of nine subparts that prescribe the requirements to ensure the continuing airworthiness of aircraft together with the approval of organisations involved in the continuing airworthiness of aircraft.
- Subpart A General
 - Subpart B Accountability
 - Subpart C Continuing Airworthiness of Aircraft
 - Subpart D Maintenance standards
 - Subpart E Component maintenance
 - Subpart F Maintenance organisation
 - Subpart G Continuing Airworthiness Management organisation
 - Subpart H Certificate of Release to Service
 - Subpart I Continuing validity of a Certificate of Airworthiness

3 APPLICABILITY

- 3.1 Regulation (EC) No 2042/2003 Annex 1 Part-M is applicable to organisations and personnel involved in the continuing airworthiness of EASA aircraft and components, including the maintenance of aircraft:
- (a) designed or manufactured by an organisation for which the Agency or a Member state ensures safety oversight: or
 - (b) registered in a Member State; or
 - (c) registered in a third country and used by an operator for which any Member State ensures oversight of operations;

NOTE: This does not apply when the safety oversight of an aircraft has been delegated to a non EU Member state and a Community operator does not use the aircraft.

- 3.2 Part-M is applicable to all aircraft including aeroplanes, helicopters, gliders, airships and balloons issued with an Airworthiness Certificate except those provided for by Annex II of Regulation (EC) No 1592/2002 and aircraft which are engaged in military, customs, police or similar activities.

NOTE: Maintenance Requirements for balloons holding a Certificate of Airworthiness shall be in accordance with British Balloon and Airship Club (BBAC) procedures and required tasks shall be certified by appropriately authorised BBAC inspectors.

4 AIRCRAFT GROUPS

4.1 In order to apply the requirements of Annex I (Part-M) all aircraft can be considered to fall into one of two groups:

Group 1- Applicable to all aircraft used for commercial air transport and all “large aircraft”.

This group of aircraft is required to be maintained in a “controlled environment”, therefore the continuing airworthiness is to be managed by an organisation approved in accordance with Part-M Subpart G. The aircraft are required to be maintained to common maintenance standards specified in Part-M Subpart D by an organisation approved in accordance with Part-145 and released to service by Part-66 qualified staff.

NOTE 1: For the purpose of this regulation a “large aircraft” means an aeroplane with a MTOM of more than 5700kg, or a multi-engine helicopter.

NOTE 2: An aircraft is within a “controlled environment” when it is continuously managed by the same approved Subpart G organisation for a period of 12 months or more and maintained by an appropriately approved maintenance organisation.

Group 2 – Applicable to all aircraft not used for commercial air transport, with a MTOM of 5700kg or less and single engine helicopters.

This group of aircraft can be maintained in a “controlled environment” as for Group 1 aircraft. Alternatively the continuing airworthiness may be managed:

- (a) by the owner or lessee if they consider themselves to be competent or
- (b) by an approved continuing airworthiness management organisation (Part-M Subpart G).

The aircraft are also to be maintained to the standards specified in Part-M Subpart D and the maintenance performed by either:

- (a) an organisation approved in accordance with Part-145 or,
- (b) Part-M Subpart F organisation or,
- (c) with certain limitations, an individual licensed aircraft engineer (Part-M Subpart H).

All aircraft are required to be released to service by Part-66 qualified staff.

NOTE: For aircraft less than 2730kg MTOM, limited pilot-owner maintenance may be carried out and the aircraft released to service as specified.

5 EFFECTIVE DATE

5.1 The Regulation effective date was 29 November 2003.

5.2 A number of provisions of the regulation are subject to derogations that will allow for a transition period.

6 DEROGATIONS

6.1 The transition arrangements for Annex 1, Part-M are detailed as follows:

- (a) **For aircraft engaged in commercial air transport**, by way of derogation from the Regulation, the provisions of Annex 1 (Part-M) became effective from 28 September 2005, except for paragraphs M.A.201 (h)(2) and M.A.708(c). From 29 November 2003 all aircraft used by a UK operator for the purposes of commercial air transport will have all maintenance carried out by a Part-145 organisation either directly or by a contract-ed organisation.

NOTE 1: M.A.201(h)(2) requires a commercial air transport operator to be approved in accordance with Part-145 or contract the maintenance to a Part-145 organisation.

NOTE 2: M.A.708(c) requires a commercial air transport operator to have a written contract between the Part-145 organisation and the operator ensuring that all maintenance is ultimately performed by a Part-145 organisation.

NOTE 3: All balloons operated for commercial air transport will continue to have their maintenance managed and performed through the British Balloon and Airship Club (BBAC) until further advice is provided.

- (b) For aircraft engaged in commercial air transport, by way of derogation from the regulation, the CAA has elected not to fully apply the provisions of Annex 1 (Part-M) Subpart I Airworthiness Review Certificate (ARC), until 28 September 2007.

NOTE: It is intended that the Airworthiness Review Certificate process will be progressively introduced together with non-expiring Certificates of Airworthiness, Appendix 3 of this Airworthiness Notice refers.

- (c) For aircraft not involved in commercial air transport, by way of derogation from the regulation, the CAA has elected not to apply the provisions of Annex 1 (Part-M) until 28 September 2008, so aircraft operated for private use will not be required to comply with the regulation until this date.

NOTE: The CAA will review the feasibility of introducing voluntary adoption of the necessary approvals at an earlier date. (See implementation policy below.)

7 IMPLEMENTATION POLICY

7.1 The planned CAA implementation policy for Annex 1 (Part-M) will be as follows:

- 28 September 2005 - Procedures and processes in place to accept applications from individuals and non-commercial air transport organisations for the approval of Continuing Airworthiness Management Organisations (Subpart G).
- 28 September 2006 - Procedures and processes in place to accept applications from Part M Subpart G approved organisations for the additional privilege of recommending and issuing Airworthiness Review Certificates (ARC).
- 31 December 2006 - Procedures and processes in place to accept applications for Part M Subpart F maintenance organisation approval.
- 28 September 2008 - All aircraft subject to EASA requirements to be fully in compliance with Part M.

7.2 It is intended to provide periodic updates to industry during the implementation of Part-M (this will include, where necessary, explanatory and feedback workshops). The Industry workshops are initially planned to take place between May and June 2006.

7.3 Aircraft that are currently operated for police, military or customs duties will carry on as they are, pending a CAA review of national procedures. Further details can be found in Airworthiness Notice No. 13.

7.4 Organisations registered in the Channel Islands and the Isle of Man may apply to the CAA for a Part-M Subpart G Approval. However, they will not be eligible for the additional privilege of recommending or issuing Airworthiness Review Certificates.

Airworthiness Notice No. 7**Appendix 3***Issue 4**29 September 2006***Certificate of Airworthiness issue and renewal and associated continuing airworthiness procedures****1 INTRODUCTION**

This Appendix provides information on the implementation of EASA Part 21 Subpart H with respect to Certificates of Airworthiness applicable for aircraft subject to Regulation (EC) No.1592/2002.

2 APPLICABILITY

2.1 Aircraft subject to Regulation (EC) No. 1592/2002 are considered as EASA aircraft and shall comply with this regulation.

2.2 Aircraft which are specified in Regulation (EC) No.1592/2002 Annex II are considered as non-EASA aircraft and are not subject to this Regulation. These aircraft will remain subject to UK legislation in accordance with the Air Navigation Order (ANO).

2.3 Aircraft engaged in military, police or customs service as specified in Article 1.2 of Regulation (EC) No. 1592/2002 are considered as non-EASA aircraft and are not subject to this Regulation. These aircraft will remain subject to UK legislation in accordance with the Air Navigation Order (ANO).

NOTE: Non-EASA aircraft will remain eligible for Certificates of Airworthiness or Permits to Fly as applicable issued in accordance with the ANO and British Civil Airworthiness Requirements (BCAR), Section A/B.

3 COMPLIANCE PROGRAMME

3.1 Regulation (EC) No 1702/2003, Part 21 Subpart H, which addresses Airworthiness Certificates, became effective on the 28 September 2004. EASA aircraft are issued with airworthiness certificates in accordance with Part 21 Subpart H.

NOTE 1: Airworthiness certificates include Certificates of Airworthiness (EASA Form 25), Restricted Certificates of Airworthiness (EASA Form 24) and Permits to Fly (EASA Form 20).

NOTE 2: Part 21 Subpart H, 21A.181, requires a Certificate of Airworthiness to be issued for an unlimited duration but, by way of derogation, Certificates of Airworthiness may continue to be issued for a limited duration until 28 September 2008.

3.2 For implementation of Part 21 Subpart H, there will be a phased introduction of EASA airworthiness certificates, at Certificate of Airworthiness renewal, prior to 28 September 2008.

4 INITIAL APPLICATION AND RENEWAL

4.1 Application for the issue of a Part 21 Subpart H Certificate of Airworthiness will need to be made using Form CA3 (EASA).

4.2 Until 28 September 2008 an application for a renewal of a Certificate of Airworthiness will be made using Form AD200 (EASA).

NOTE 1: A recommendation for renewal from a suitably approved organisation will be made using Form AD202NR (EASA).

NOTE 2: Compliance with certain maintenance or operational requirements as referenced in associated CAA publications is now predicated upon the purpose for which the aircraft is operated. These publications have been amended to revise applicability dependent upon whether the aircraft is operated for Private use, or for the purposes of Aerial Work or Public Transport.

NOTE 3: The definition of Private, Aerial Work and Public Transport is defined in Articles 157 through 163 inclusive of the Air Navigation Order 2005.

- 4.3 Regulation (EC) No. 1702/2003 requires all aircraft to have a non-expiring Certificate of Airworthiness by 28 September 2008. CAA have initiated a planned transition to non-expiring documents in accordance with this regulation.

To facilitate this transition, until 28 September 2006, CAA will only issue or renew Certificates of Airworthiness with a validity period of 12 months or 24 months (as requested by the applicant). Thereafter, CAA will issue or renew such certificates for a 12 month validity period only.

- 4.4 From 28 September 2007 it is anticipated that non-expiring Part 21 Subpart H Certificates of Airworthiness will be issued by the CAA. The initial validation of these certificates, an Airworthiness Review Certificate (ARC) EASA Form 15a (reference Part 21B.325 (b)), will be issued by the CAA and will be valid for a period of 12 months.

NOTE: With effect from 28 September 2008, for aircraft below 2730 kg the airworthiness review will not need to be aligned to an Annual Inspection. The approved organisation must however be satisfied the aircraft is in compliance with the requirements of Part-M Subpart G M.A.710.

- 4.5 Until 28 September 2008, annual recommendations for renewal of an expiring C of A may be made by Organisations approved in accordance with BCAR A8-3 Supplement 2 (Group B1) or BCAR A8-15 (Group M3).

- 4.6 From 28 September 2008, recommendations for the issue of an ARC may only be made by organisations approved in accordance with Part-M Subpart G who also hold the additional privilege of Part M.A.711 (b).

NOTE: Under EASA regulations a Part-M Subpart G organisation holding the additional privilege of M.A.711 (b) may issue, extend twice annually and subsequently re-issue an ARC (EASA Form 15b) subject to the aircraft remaining in a controlled environment for a minimum of 12 months.

Airworthiness Notice No 7**Appendix 4***Issue 2**29 March 2006***Part-66 – The licensing of aircraft maintenance engineers****1 INTRODUCTION**

- 1.1 Regulation (EC) 2042/2003 Annex III Part-66 Certifying Staff, establishes the requirements for the issue of an aircraft maintenance engineer's licence and the conditions of its validity and use. Part-66 details licence categories and subcategories relating to combinations of aeroplanes, helicopters, turbine and piston engines.
- 1.2 The information in this Appendix is advisory only and reference must be made to the current issue of the Regulation, at www.caa.co.uk or www.easa.eu.int.

2 APPLICABILITY

All Certifying staff with some exceptions, as detailed in the regulation, shall be qualified in accordance with Part-66.

3 EFFECTIVE DATE

Regulation (EC) 2042/2003 Annex III Part-66 entered into force on 29 November 2003.

4 DEROGATIONS

None Applicable.

5 IMPLEMENTATION POLICY

The UK Civil Aviation Authority (CAA) commenced issue of Part-66 Licences in June 2004 for aircraft above 5700 kg and November 2004 for aircraft of 5700 kg or below. EC Regulation 2042/2003 requires that a Part-66 Licence is required for certification of aircraft above 5700 kg as of 28 September 2006 and for aircraft of 5700 kg and below as of 28 September 2008.

6 LICENCES

- 6.1 Any aircraft maintenance licence and, if any, technical limitations associated with that licence, issued or recognised by the UK CAA in accordance with the Joint Aviation Authorities (JAA) requirements and procedures, which was valid at the effective date of the Regulation, is deemed to have been issued in accordance with the Regulation.
- 6.2 JAR-66 maintenance engineers' licences issued by the UK CAA are acceptable in accordance with the requirements of the Regulation and require no conversion. At the next licensing action to a JAR-66 licence the CAA will issue the maintenance engineer's licence as a Part-66 Licence.
- 6.3 Holders of BCAR Section L Licences for aircraft with a maximum take-off mass of above 5700 kg, should continue to apply for the conversion of their licence to a Part-66 licence.
- 6.4 Reserved.
- 6.5 Holders of BCAR Section L Licences are required to convert to a Part-66 Licence by the dates given at paragraph 5 of this Appendix.
- 6.6 BCAR Section L Licences including the category B licence will be maintained for maintenance and overhaul of aircraft excluded from EC Regulation 1592/2002. A discussion document regarding the BCAR Section L Category D Licence has been drafted with a final decision anticipated late 2006.

Airworthiness Notice No 7**Appendix 5***Issue 2**29 March 2006***Part-147 – Approval of Organisations for the training and examination of licensed aircraft maintenance engineers****1 INTRODUCTION**

- 1.1 Regulation (EC) 2042/2003 Annex IV Part-147 establishes the requirements to be met by organisations seeking to conduct the training and examination of personnel as specified in Part-66.
- 1.2 The information in this Appendix is advisory only and reference must be made to the current issue of the Regulation, at www.caa.co.uk or www.easa.eu.int.

2 APPLICABILITY

Part-147 is applicable to all maintenance training organisations seeking to conduct the training and examination of personnel.

3 EFFECTIVE DATE

- 3.1 Regulation (EC) 2042/2003 Annex IV Part-147 entered into force on 29 November 2003.
- 3.2 All new applications by organisations wishing to conduct the training and examination of personnel must now be in compliance with Part-147.

4 DEROGATIONS

No derogations applicable.

5 IMPLEMENTATION POLICY

All UK approved training organisations are now compliant with Part-147.

6 APPROVED ORGANISATIONS LOCATED OUTSIDE EU MEMBER STATES

- 6.1 With the responsibility of training organisations located outside of the territory of EU Member States having been transferred to EASA from 29 November 2003 the main changes in the administration will be as follows:
- (a) Approval certificates will be issued by EASA on receipt of a recommendation made by the CAA. The Approval certificates will no longer have an expiry date but will still need a recommendation for the continuation of the approval every two years.
 - (b) Applications for changes (variations) to an approval administered by the CAA are to be sent to the CAA.
 - (c) The Maintenance Training Organisation Exposition and all amendments should be sent to the CAA for approval.

NOTE 1: New applicants for a Part-147 approval located outside of the territory of EU Member States should apply to EASA and not to the UK CAA.

NOTE 2: Organisations located in the Isle of Man and the Channel Islands are considered to be outside of the territory of EU Member States for the purposes of this regulation. The CAA will continue to administer any such approvals issued prior to 29 November 2003 on behalf of EASA.



**No. 8
Issue 1
30 April 1976**

Cessna 300 and 400 Series Aircraft – Fuel Icing

- 1** Since 1973 there have been several cases of severe engine power loss on Cessna Models 310 and 421 aircraft. The power loss has been caused by icing of the fuel at the fuel manifold valve. At the time of the early incidents the CAA informed all owners and operators of the affected aircraft of the problem, and subsequently prescribed limitations relating to minimum ambient air temperatures and the use of Isopropyl Alcohol.
- 2** Cessna Aircraft Company subsequently issued Service Letter ME 73-25 drawing attention to the use of fuel additives for cold weather operation. This Service Letter only contained recommendations for application, and quoted a different ambient air temperature for use of the fuel additive. This notice overrides the temperature limitation laid down in Cessna Service Letter ME 73-25.
- 3** There have been further cases reported of power loss on Cessna 421 aircraft in 1975, and the CAA feels that the original advice of the limitations imposed may not have found its way to new owners.
- 4** The CAA, therefore, draws the attention of all operators of Cessna 300 and 400 Series aircraft fitted with Continental fuel injection engines to the fact that to avoid power loss the following must be observed.
 - 4.1 If the aircraft is to be flown in ambient temperatures of -23°C (-10°F) or below, then Isopropyl Alcohol in a concentration of 1% by volume must be blended into the fuel.
 - 4.2 Continental Aircraft Engine Service Bulletin M 73-3 Revision 1, dated August 13th 1973, gives guide lines on the blending of the alcohol into the fuel. Isopropyl Alcohol to Specification BS 1595 or MIL-F-5556 is acceptable.

AIRWORTHINESS NOTICE

No. 9
Issue 4
29 September 2006

Issue of EASA Permit to Fly, Replacing ANO 'A' and 'B' Conditions and some BCAR Permits to Fly for Test or Ferry Purposes**1 INTRODUCTION**

- 1.1 This Notice has been issued to provide guidance to owners/operators of aircraft, approved design, maintenance and production organisations and licensed aircraft maintenance engineers, on a change in legislation resulting from the implementation of Part 21 Subpart H, which came into force on 28 September 2004.
- 1.2 European Commission Regulation (EC) No. 1702/2003 makes provision for an EASA Permit to Fly to be issued for an aircraft to fly when a valid EASA airworthiness certificate is currently not in force. An EASA Permit to Fly may be issued where it can be shown that associated restrictions and compensating factors enable the aircraft to carry out a flight or series of flights safely. The procedures described in this notice are an interim measure to comply with the above referenced regulation until such time as EASA publishes formal procedures.
- 1.3 For aircraft required to have an airworthiness certificate issued under European Commission Regulation (EC) No. 1702/2003 (EASA aircraft), flight under the auspices of A or B conditions, and BCAR Permits to Fly for test or ferry purposes only, is no longer a legal permission for flight.
- 1.4 Article 8(2)(d) and Article 11 of the Air Navigation Order (ANO) 2005 (as amended) allows the use of A or B conditions and Permits to Fly in respect of non-EASA aircraft only.
- NOTE:** Aircraft which are engaged in Military, Police, Customs or similar services or are within the categories defined in Annex II of European Regulation (EC) No 1592/2002, are not subject to European Commission Regulations.

2 APPLICABILITY

- 2.1 This Notice is applicable to aircraft that are within the applicability of European Regulation (EC) No. 1592/2002; (the "EASA Regulation").
- NOTE 1:** For the purposes of this Airworthiness Notice, aircraft that are required to comply with European Regulation (EC) No. 1592/2002 are specified as "EASA Aircraft".
- NOTE 2:** Airworthiness certificates for EASA aircraft are prescribed in Part 21 Subpart H as follows:
- (a) Certificate of Airworthiness (Form 25)
 - (b) Restricted Certificate of Airworthiness (Form 24)
 - (c) Permit to Fly (Form 20)
- NOTE 3:** A valid Certificate of Airworthiness in the Transport, Aerial Work or Private Category issued by the CAA to an EASA aircraft prior to the 28 September 2004, shall be deemed to be an EASA Certificate of Airworthiness.
- 2.2 Where there is a need to fly an EASA aircraft when an EASA airworthiness certificate is not in force or a flight is necessary for the issue of such a certificate, an application will need to be made for an EASA Permit to Fly. The process for such an application and the procedures to be followed are detailed in the subsequent paragraphs of this Notice.

2.3 POST MAINTENANCE CHECK FLIGHTS

This type of 'check flight' is to confirm the acceptability of an aircraft or helicopter, post maintenance (this includes 'check flights' required after series installation of modifications which have been previously approved by EASA). The flight crew monitors the performance and reports back that the systems are acceptable, or further adjustment required. If a report for adjustment is called for, then it is accomplished and certified. A further check flight may be carried out to confirm the acceptability of the system.

This type of activity is included in the Aircraft Maintenance Manual (or within the installation instructions for EASA approved modifications). As the instructions for continuing airworthiness issued by the TC/Modification Approval Holder are being followed, the C of A remains **valid**. This is supported by Part-145.A.50 (e) that allows a CRS to be issued with incomplete maintenance. Therefore, provided that there is an open tech log entry for the flight crew to carry out the 'check' flight and to report back, the requirements of Part-145 are still met and the C of A remains **valid**. There is no requirement in this case for the issue of an EASA Permit to Fly.

3 APPLICATION

3.1 An EASA Permit to Fly may be issued to an aircraft that does not fully comply with the type certification or applicable airworthiness and maintenance requirements, providing it is capable of performing a basic flight or series of flights safely. Application shall be made in accordance with either paragraph 3.2 or 3.3 as appropriate.

3.2 **Application for an EASA Permit to Fly for the purpose of flights which will take place outside the airspace of the United Kingdom; or,**

Application for an EASA Permit to Fly where it is intended that the aircraft will conduct flight tests required by Part 21 (e.g. for the purposes of obtaining or amending a Type Certificate, Supplemental Type Certificate or for production flight testing).

An application for an EASA Permit to Fly prescribed above shall be made to the Applications and Approvals Department, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR. The application form is included as Appendix 2 of this Notice.

NOTE 1: If the request is associated with the issue or renewal of a Certificate of Airworthiness, an EASA Permit to Fly can only be issued if a valid application for the issue or renewal of a Certificate of Airworthiness for that aircraft has been received by the CAA.

NOTE 2: Obtaining a Type Certificate or Supplemental Type Certificate necessitates the showing of compliance with the applicable airworthiness and environmental requirements detailed in Part 21, paragraph 21A.20, 21A.35, 21A.97 or 21A.114 as amended.

3.3 **Application for an EASA Permit to Fly for the purpose of flights, formerly carried out under 'A' Conditions and any other such flights performed entirely within the airspace of the United Kingdom, other than flight tests required by Part 21.**

An application for an EASA Permit to Fly prescribed in this respect shall be made to the local CAA Regional Office as prescribed in Airworthiness Notice No. 29. The application form is included as Appendix 2 of this Notice.

NOTE: If the request is associated with the issue or renewal of a Certificate of Airworthiness, an EASA Permit to Fly can only be issued if a valid application for the issue or renewal of a Certificate of Airworthiness for that aircraft has been received by the CAA.

4 PROCEDURE

4.1 Applications for an EASA Permit to Fly to allow flight testing to take place or where the airworthiness certificate is not in force, shall be made by an appropriately type rated licensed aircraft engineer, Part 145 maintenance organisation, Part 21 design organisation or CAA authorised/approved persons, using the form shown in Appendix 2 of this Notice. All parts of the form must be completed.

4.2 The CAA may specify additional inspections and/or tests, where considered necessary.

- 4.3 The CAA shall issue an EASA Permit to Fly when satisfied that the condition of the aircraft has been properly assessed by the applicant and is in a condition to perform a basic flight or series of flights safely. The permit may contain conditions and limitations under which the flight(s) may be made. The CAA retains the right to carry out a survey of the aircraft and/or associated records to verify the airworthiness of the aircraft prior to the issue of an EASA Permit to Fly.

5 CERTIFICATION – FLIGHT RELEASE CERTIFICATE

- 5.1 Prior to a flight being made under the terms of an EASA Permit to Fly, a Flight Release Certificate shall be issued. The format of a Flight Release Certificate is referenced in Appendix 1 of this Notice.
- 5.2 The validity of the Flight Release Certificate shall be stated but shall not exceed 14 days. If the airworthiness condition of the aircraft is changed during the period of validity, the certificate shall be re-issued. Each certificate shall be issued in duplicate and one copy retained elsewhere than in the aircraft.
- 5.3 The Flight Release Certificate shall be issued only by the following:
- (a) The holder of a valid and appropriately type rated aircraft maintenance engineer's licence granted under BCAR Section L or the holder of a Part-66 licence appropriately endorsed for the aircraft type rendered valid in the United Kingdom.
 - (b) The holder of a valid and appropriate authorisation issued by an organisation approved under Part 145 and in accordance with the terms of that authorisation.
 - (c) The holder of a valid and appropriate authorisation issued by an organisation approved under Part 21 and in accordance with the terms of that authorisation.
 - (d) A person authorised/approved by the CAA as being competent to issue such certification in a particular case.

6 CERTIFICATION OF MAINTENANCE

When prescribed as a condition associated with the EASA Permit to Fly, with the exception of a pre-flight inspection, any maintenance performed on an aircraft whilst operating on such a Permit will require the issue of a Certificate of Release to Service (CRS). The issue of a CRS will be in accordance with the ANO, Part 145 or Part 21.163 as appropriate.

7 CANCELLATION

This Notice cancels Airworthiness Notice No. 9, issue 3, dated 29 March 2006, which should be destroyed.

AIRWORTHINESS NOTICE No. 9

Appendix 1

Issue 1

28 September 2004

EASA Permit to Fly – Flight Release Certificate

Flight Release Certificate	
Aircraft Type	.....
Registration	G-.....
Serial No.	.....
<p>It is hereby certified that the aircraft defined hereon has been inspected and is considered fit for flight provided it is properly loaded.</p> <p>This Certificate is associated with EASA Permit to Fly No..... and is valid from until..... or until the airworthiness condition of the aircraft is altered, whichever is earlier.</p>	
Licence / Authorisation No	..... Date
Signed	.....
Name (<i>Print</i>)	.....
Organisation	.....
Organisation Approval Number	.....

1. The period of validity shall not exceed 14 days.
2. The Certificate shall only be issued to an aircraft that is to be flown under the authorisation of an EASA Permit to Fly (Form 20) issued by the UK CAA.
3. The Certificate shall be issued in duplicate and one copy kept elsewhere than in the aircraft.
4. If the airworthiness condition of the aircraft is affected during the period of validity the Certificate shall be re-issued.

AIRWORTHINESS NOTICE No. 9

Appendix 2

Issue 4

29 September 2006

NOTE: This Form can be downloaded from the CAA web site at www.caa.co.uk/SRG1701

**APPLICATION FOR THE ISSUE OF AN EASA PERMIT TO FLY
(IN ACCORDANCE WITH AIRWORTHINESS NOTICE NO. 9)**

This Form is to be used only for applications in accordance with Airworthiness Notice No. 9.



Aircraft Registration: **Aircraft Type:**

Serial No: **Aircraft Location:**

(a) DETAILS OF APPLICANT

Name:

Address:

.....

Tel. No: **Fax No:**

E-mail:

(b) ADDRESS TO WHICH PERMIT TO BE SENT (if different from above)

.....

.....

(c) DETAILS OF APPROVED ORGANISATION/PERSONS

Name and work location address of the Licensed Aircraft Engineer(s), Part 145 Organisation, Part 21 Production Organisation or CAA Authorised Person that will be responsible for the issue of the Flight Release Certificate associated with this EASA Permit to Fly,

and

where applicable the Part 21 Design Organisation responsible for the management and control of flight testing.

Name(s): Location(s):

(d) PURPOSE OF FLIGHT(s)

Qualify for the Issue/Renewal/Re-Validation of an EASA airworthiness certificate.

Proceed to or from a place for maintenance/test/weighing/painting to be performed.

Proceed to or from a place of storage.

Flight testing for showing compliance with applicable certification and environmental protection requirements (including approval of modifications).

Other. (Specify on separate attached report)

(e) DESCRIPTION OF FLIGHT(s)

From: To:

Via: *Date of intended Flight:

(If a series of flights are to be carried out under an approved 'Flight Test Programme', specify on separate attached report)

* Issue date of Permit

AIRWORTHINESS NOTICE**No. 10
Issue 27
29 March 2006****Aircraft Maintenance Engineers' Licences – Type Ratings****1 INTRODUCTION**

1.1 When reading this document, the reader must take into account Commission Regulation (EC) No. 2042/2003. The Commission Regulation is a legal document, which applies to the UK aviation industry.

1.2 This Airworthiness Notice No. 10 sets out the Type Ratings that may be endorsed upon a BCAR Section L for Aircraft Maintenance Engineers' Licence or a Part-66 Aircraft Maintenance Licence issued by the United Kingdom Civil Aviation Authority in respect of the certification of aircraft registered in the United Kingdom, including also their engines and systems.

NOTE 1: A licence can only be used to certify for non-commercial air transport. Aircraft which are operated for commercial air transport must be maintained by a Part-145 Approved Organisation and all staff who certify for maintenance within those organisations must be in possession of a valid certifying authorisation (see Airworthiness Notice No. 14).

NOTE 2: As of 28 September 2008 Certification of Maintenance on aircraft using a licence as authority is limited to items which are not listed at Part-M Appendix VII.

1.3 Following the full implementation of JAR-66 on 1 June 2001, type ratings in respect of types of aircraft of 5700 kg MTOM and above, or the engines or systems fitted to such aircraft, are not available to holders of Aircraft Maintenance Engineers' Licences issued under Issue 14 and subsequent issues of BCAR Section L which came into effect on 1 June 2001. Part-66 replaced JAR-66 in the UK as of June 2004 for aeroplanes above 5700 kg and November 2004 for all other aircraft. Holders of licences granted under earlier issues of Section L, and which already include the appropriate LWTR, may continue to apply for such type ratings until the privileges are transferred to a Part-66 licence. Full information may be found in BCAR Section L Issue 14.

2 GENERAL

2.1 The requirements for the grant, extension and renewal of BCAR Section L Aircraft Maintenance Engineers' Licences are contained in the current Issue of BCAR Section L. For full understanding of the requirements, Section L must be read in conjunction with this Airworthiness Notice No. 10.

2.2 The requirements for the grant, variation or renewal of Part-66 Aircraft Maintenance Licences are contained in Commission Regulation (EC) No. 2042/2003. For full understanding of the requirements, Part-66 within Commission Regulation (EC) No. 2042/2003 must be read in conjunction with Acceptable Means of Compliance (AMC) to Part-66 and Guidance Material to Part-66, this Airworthiness Notice No. 10 and, where appropriate, Part-145. Part-66 Category B1 licences issued by the UK CAA may also allow the certification, under the provisions of Articles 14 and 16 of the Air Navigation Order 2005 (as amended), for work outside of a CAA approved maintenance organisation on aircraft which are not operated for commercial air transport. Such privileges are limited to UK registered aircraft only. Certifications may only be made for those aircraft types which are endorsed individually or as Group Type Ratings on the licence, otherwise, a Part-66 licence must be used in conjunction with a Part-145 certification authorisation (see Part-145 and Airworthiness Notice No. 3).

- 2.3 The requirements of BCAR Section L and Part-66 recognise the standards prescribed by the International Civil Aviation Organisation (ICAO) for the grant and extension of licences.

3 APPLICABILITY

- 3.1 Where a type of aircraft (or its engines or systems) is defined by one of the Group Type Ratings in paragraphs 5 to 9, 12, 13 or 15 of this Notice, an engineer may exercise the certification privileges in respect of that type, subject in particular to the provisions of Airworthiness Notice No. 3 and provided that:
- (a) he holds a valid UK CAA issued Type Rated Licence, and
 - (b) an aircraft of the type is registered in the United Kingdom and holds a United Kingdom issued Certificate of Airworthiness.
- 3.2 Where a type of aircraft (or its engines or systems) is listed individually within paragraphs 5, 6, 7 and 10 of this Notice, the licence holder has certification privileges in respect of the individual types as listed on the licence, subject in particular to the provisions of Airworthiness Notice No. 3.
- 3.3 Where a type of aircraft (or its engines or systems) is not defined by a Group Type Rating or is not listed by name, an application for the Type Rating of a licence in respect of that type of aircraft, engines or systems, will be considered provided that:
- (a) an aircraft of the type is registered in the United Kingdom and holds a United Kingdom issued Certificate of Airworthiness, and
 - (b) the aircraft is not of a type which is defined in paragraph 14 of this Notice.
- 3.4 In respect of aircraft types maintained under Part-145, the CAA will consider applications for the endorsement of type ratings on a BCAR Section L licence where the aircraft type rating is required for the issue of a Part-145 certification authorisation and:
- (a) The aircraft is a type which is not registered in the United Kingdom and does not hold a United Kingdom issued Certificate of Airworthiness but is registered in an EU member state, and
 - (b) The aircraft is less than 13 610 kg (30 000 lb) MTWA.

NOTE: EU registered aircraft greater than 13 610 kg MTWA will be classified as a type which is defined in paragraph 14 of this Notice. Such type ratings will not be issued on a BCAR Section L licence but are available on a Part-66 licence.

4 CATEGORIES 'A' 'B' 'C' 'D' AEROPLANES, ENGINES AND ROTORCRAFT

4.1 Specific Type Ratings

- 4.1.1 Type Ratings may be granted for specific aircraft and/or engines defined by, or listed in, paragraphs 5, 6 or 7 of this Notice, except as indicated in sub-paragraphs 4.1.2, 4.1.3 and 4.1.4.
- 4.1.2 A Type Rating in Category 'B' – Aeroplanes, will not be granted in respect of an unpressurised aeroplane exceeding 5700 kg MTWA, an aeroplane in which the primary structure is of reinforced plastic/epoxy manufacture, or any pressurised aeroplane.
- 4.1.3 A Type Rating in Category 'D' – Engines, will not be granted in respect of a piston engine with a power rating exceeding 500 kW (670 bhp), or any jet- or propeller-turbine engine (not available for new licence issue).
- 4.1.4 A Type Rating in Category 'B' – Rotorcraft, will not be granted in respect of a turbine-engined rotorcraft exceeding 2730 kg MTWA.

4.2 Group Type Ratings

- 4.2.1 A Group Type Rating granted in relation to sub-paragraphs of paragraph 5, 6 or 7 of this Notice includes all the aeroplanes, engines, or rotorcraft defined by that sub-paragraph except as limited by sub-paragraphs 4.2.4 or 4.2.5.

- 4.2.2 Group Type Ratings for Categories 'A' and 'C' may be granted for a group of aeroplanes, engines or rotorcraft defined by sub-paragraphs 5.0, 5.1, 5.7, 5.7.1, 5.9.1, 6.0, 6.3, 7.1 or 7.3 only.
- 4.2.3 Licence holders with Group Type Ratings in Categories 'A', 'B', 'C' or 'D' for sub-paragraphs 5.2, 5.2.1, 5.3, 5.3.1, 5.4, 5.5, 5.5.1, 6.1, 6.2, 6.3.1 and 6.4 may continue to exercise the privileges of the licence for the types defined by these groups subject to any limitations endorsed on the licence.
- 4.2.4 Group Type Ratings for Category 'B' – Aeroplanes or rotorcraft, may be granted for sub-paragraphs 5.1, 5.7, 5.7.1, 7.1 and 7.3, excluding any rotorcraft exceeding 2730 kg MTWA.
- 4.2.5 Group Type Ratings for Category 'D' – Engines may be granted on existing Category D licences for sub-paragraphs 6.0 and 6.3, and includes rotorcraft and airship engines, but excludes engines with a power rating exceeding 500 kW (670 bhp).
- 4.2.6 Sub-paragraphs indicated thus * in this Notice are not obtainable as new endorsements on a licence.

5 CATEGORY 'A' AND 'B' AEROPLANES

- 5.0 Composite Materials Aeroplanes Not Exceeding 5700 kg MTWA (not available in Category B).
- 5.1 Wooden and Wood and Metal Aeroplanes:
Aeroplanes where the primary structure is manufactured from wood or combinations of wood and metal.
- 5.2 *Unpressurised metal aeroplanes not exceeding 2730 kg MTWA.
- 5.2.1 *Unpressurised metal aeroplanes not exceeding 2730 kg MTWA with fixed landing gear only.
- 5.3 *Unpressurised metal aeroplanes not exceeding 5700 kg MTWA.
- 5.3.1 *Unpressurised metal aeroplanes not exceeding 5700 kg MTWA with fixed landing gear only.
- 5.4 *Unpressurised metal aeroplanes, but excluding aeroplanes defined in paragraph 14 of this Notice.
- 5.5 *Pressurised metal aeroplanes not exceeding 5700 kg MTWA and all unpressurised metal aeroplanes, but excluding aeroplanes defined in paragraph 14 of this Notice.
- 5.5.1 *Pressurised and unpressurised metal aeroplanes not exceeding 2730 kg MTWA.
- 5.6 Individual types of pressurised aeroplanes exceeding 5700 kg MTWA, but excluding those aeroplanes defined in paragraph 14 of this Notice.
- 5.6.1 Due to the significant changes in the type since it was first introduced, the type rating for the Boeing 737 will be grouped to cover the following variants:
B737-100 and -200 series
B737-300, -400 and -500 series
B737-600, -700, -800 and -900 series
Existing holder of the Category 'A' B737 type rating will qualify for the B737 up to and including the 500 series. Licences will be updated at the next licence renewal or extension. The 600/700/800/900 may be added subject to satisfactory completion of a differences course or full course. Licence holders who want their licences to be modified to reflect the new arrangements sooner should send their licences to Personnel Licensing at Aviation House, Gatwick (see Airworthiness Notice No. 29).
New applicants for a B737 type rating will be granted a rating or ratings corresponding to the variants covered by the recognised training course.
- 5.7 Unpressurised metal aeroplanes not exceeding 5700 kg
- 5.7.1 Unpressurised metal aeroplanes not exceeding 2730 kg MTWA
- 5.8 Unpressurised metal aeroplanes exceeding 5700 kg MTWA

- 5.9 Individual pressurised metal aeroplanes exceeding 2730 kg MTWA, but not exceeding 5700 kg MTWA
- 5.9.1 Pressurised metal aeroplanes not exceeding 2730 kg MTWA
- 6 CATEGORY 'C' AND 'D' – ENGINES**
- 6.0 Diesel engines in aeroplanes.
- 6.1 *Unsupercharged reciprocating piston engines, excluding Diesel engines, fitted with a fixed pitch propeller.
- 6.2 *Unsupercharged reciprocating piston engines, excluding Diesel engines, fitted with a fixed or variable pitch propeller.
- 6.3 Category 'C' Piston engines in Aeroplanes, excluding Diesel engines.
- 6.4 *Category 'D' Piston engines not exceeding 500 kW (670 bhp) in Aeroplanes/Rotorcraft/Airships, excluding Diesel engines.
- 6.3.1 *Piston engines, excluding Diesel engines, in Aeroplanes not exceeding 2730 kg MTWA.
- 6.4 Jet-turbine engines in Aeroplanes not exceeding 22.25 kN (5000 lbf) static thrust including where so endorsed the associated APU installations.
- 6.5 Individual types of propeller turbine engines in aeroplanes (including, where so endorsed, the associated APU installations):
- Allison 250 ▲
- Garret Airesearch TPE 331
- General Electric CT7 ▲
- Rolls Royce Dart
- Rolls Royce Tyne
- Pratt & Whitney Canada PT6 ▲
- Pratt & Whitney Canada 118
- Turbomeca Astazou
- NOTE:** For engines annotated ☉ or ▲ see Airworthiness Notice No. 3, sub-paragraph 4.4.
- 6.6 *Jet turbine engines, in aeroplanes, exceeding 22.25 kN (5000 lbf) static thrust including where so endorsed the associated APU installation.
- 7 CATEGORIES 'A' AND 'C' AND 'B' – ROTORCRAFT**
- 7.1 Piston-engined rotorcraft.
- 7.2 Reserved.
- 7.3 Turbine-engined rotorcraft not exceeding 2730 kg MTWA.
- NOTE:** This paragraph includes the Allison 250 and Turbomeca Arriel engines which are annotated ▲ for the purposes of Airworthiness Notice No. 3, sub-paragraph 6.4.
- 7.4 Individual types of turbine-engined rotorcraft exceeding 2730 kg:
- Aerospatiale SA 330 with Turbomeca Turmo ▲
- Aerospatiale AS 332 with Turbomeca Makila ▲
- Aerospatiale SA 365 with Turbomeca Arriel ▲
- Agusta 109E with P& W Canada 206 series ☉
- Bell 212 with P & W Canada PT6T ▲
- Bell 214 with General Electric CT7 ▲
- Bell 222 with Lycoming LTS 101 ▲
- Bell 412 with Pratt & Whitney PT6
- Eurocopter EC135 with Arrius (increased all up weight versions)
- Eurocopter EC155 with Arriel

MBB BK 117 with Lycoming LTS 101 ▲
 McDonnell Douglas 900 with P & W 206 series (increased all up weight versions)
 McDonnell Douglas MD902 with P & W Canada 206 series ⊙
 Sikorsky S58 with P & W Canada PT6T ▲
 Sikorsky S61 with General Electric CT58 ⊙
 Sikorsky S76 with Allison 250 ▲
 Sikorsky S76 with P & W Canada PT6B ▲
 Sikorsky S76 with Turbomeca Arriel ▲
 Westland W30 with RR Gem
 Westland S55 with BS Gnome ⊙
 Westland Wessex 60 with BS Gnome ⊙

NOTE: For an engine annotated ⊙ or ▲ see Airworthiness Notice No. 3, sub-paragraph 6.4.

8 CATEGORY 'X' INSTRUMENTS

- (a) A Rating granted in relation to any of the sub-paragraphs 8.1 to 8.4 inclusive, includes all of the instruments fitted to those aircraft in which are installed systems defined by or listed in that sub-paragraph excluding those aircraft listed in paragraph 10, and as limited by paragraph 3 of this Notice.
- (b) A Rating granted in relation to sub-paragraph 8.8 relates to Instruments – Direct and remote reading compasses only, but excludes compasses on those aircraft listed in paragraph 10, and is limited by sub-paragraph 3.3 of this Notice.

NOTE: (1) A Type Rated Licence which is valid for paragraphs 8.2, 8.3 or 8.4 also includes paragraph 8.1.

NOTE: (2) A Type Rated Licence which is rated for Category 'X' – Instruments now includes the INS, GPWS and compass systems, (excluding compass compensation and adjustment) whether or not these systems are separately endorsed on the licence.

NOTE: (3) Where a system is a combined flight director/ automatic pilot the rating does not include items of equipment associated solely with the automatic pilot.

- 8.1 General aircraft instrument systems but excluding instruments installed on any aircraft which has installed a Flight Director System.
- 8.2 Smiths Flight System
Sperry Zero Reader ZL1, ZL2 Flight Director System.
- 8.3 Flight Director Systems employing air driven gyroscopes (attitude).
- 8.4 Flight Director Systems employing electrically driven gyroscopes (attitudes) but excluding those systems defined in sub-paragraph 8.2.
- 8.5 Reserved.
- 8.6 Reserved.
- 8.7 Reserved.
- 8.8 'X' Instruments (compasses)
Compensation and adjustment of airborne compass and compass systems.

9 Category 'X' – Electrical

A rating granted in relation to any sub-paragraph of paragraph 9 of this Notice includes the generation system and the electrical installation in aircraft as defined by that sub-paragraph, as limited by paragraph 3 of this Notice.

NOTE: A Type Rated Licence which is valid for paragraphs 9.2 or 9.3 also includes paragraph 9.1.

- 9.1 Aircraft in which the main generation system output is DC (including alternators having a self-contained rectifier system) and in which secondary alternators having an individual power rating not exceeding 1.5 kVA may be fitted.

- 9.2 Aircraft in which the main generation system output is DC and which have installed 'frequency' wild alternators with an individual power rating exceeding 1.5 kVA for auxiliary services.
- 9.3 Aircraft in which the main generation system output is 'frequency wild' AC and DC power is supplied from transformer rectifier units.
- 9.4 Aircraft in which the main generation system output is 'constant frequency' AC from alternators driven by constant speed drive units, or variable speed constant frequency (VSCF) generator/converter systems, and DC power is supplied from transformer rectifier units.

10 Combined Category 'X' – Instruments and Automatic Pilots

- 10.1 Type ratings may be granted for specific aircraft fitted with instrument and automatic pilot systems that have an automatic landing capability or potential. Such type ratings will no longer be identified by a paragraph number but by the airframe and engine combination of the type.

A type rating granted in relation to this paragraph includes all the general instrumentation, flight director and automatic pilot systems, INS, GPWS and compass systems (excluding compass compensation and adjustment) installed in the aircraft as limited by paragraph 3 of this Notice.

New type ratings for the Boeing 737 will be granted in the following groups 737-100/200, 300/400/500 or 600/700/800/900 corresponding to the variant(s) covered by the approved training course.

Existing holders of paragraph 10.1.6 for the B737 series aircraft will be considered to have qualified on aircraft up to and including the -500 series, i.e. Boeing 737-100/200 and Boeing 737-300/400/500. The 600/700/800/900 series aircraft may be added subject to satisfactory completion of a differences course or full type course. Those persons already authorised on the Boeing 737-600/700/800/900 series aircraft by a CAA approved organisation, where such authorisation is based upon suitable differences or full type training, may continue to be authorised despite the type rating not being endorsed on the licence.

- 10.1.1 Deleted
- 10.1.2 Deleted
- 10.1.3 Deleted
- 10.1.4 *BAC One Eleven series excluding 510
- 10.1.5 *BAC One Eleven 510
- 10.1.6 *Boeing 737 series as defined above in this paragraph.

11 RESERVED

- 12 **Category 'R' – Radio** A rating granted in relation to any sub-paragraph of paragraph 12 of this Notice includes all the types of radio systems listed in that sub-paragraph, as limited by paragraph 3 of this Notice.

NOTE: A Type Rated Licence in Category 'R' – Radio includes Ground Proximity Warning Systems only when the licence is endorsed to that effect.

- 12.1 * Airborne Communication Systems.
- 12.2 Airborne Communication Systems, Airborne Navigation Systems.
- 12.2.1 Airborne Communication Systems and Airborne Navigation Systems installed in aircraft below 5700 kg MTOM, excluding HF communications systems, Passenger entertainment systems, Multiplex systems, CVR and Satellite communication systems.
- 12.3 Airborne radar systems.
- 12.3.1 Airborne radar systems installed in aircraft below 5700 kg MTOM, excluding weather radar and TCAS.

13 CATEGORY 'X' – AUTOMATIC PILOTS

A rating granted in relation to any sub-paragraph of paragraph 13 of this Notice includes all the automatic pilot systems defined by that sub-paragraph when installed in aircraft, excluding those aircraft listed in paragraph 10, and as limited by paragraph 3 of this Notice.

NOTE: (1) A Type Rated Licence which is valid for paragraph 13.2 also includes paragraph 13.1.

A Type Rated Licence which is valid for paragraph 13.3 also includes paragraphs 13.1 and 13.2.

A Type Rated Licence which is valid for paragraph 13.5 also includes paragraph 13.4.

NOTE: (2) For the purpose of licensing, automatic stabilisers are deemed to be automatic pilots.

NOTE: (3) Automatic pilots include related systems such as yaw dampers and/or roll dampers, mach trim systems and automatic throttle systems.

13.1 Non-Radio-Coupled Automatic Pilots (Aeroplanes)

13.2 Radio-Coupled Automatic Pilots (Aeroplanes) excluding ILS Coupled (LOC and GS) Automatic Pilots

13.3 ILS Coupled (LOC and GS) Automatic Pilots (Aeroplanes)

13.4 Non-Radio-Coupled Automatic Pilots (Rotorcraft)

13.5 Radio-Coupled Automatic Pilots (Rotorcraft)

14 Reserved.

15 COMPASS COMPENSATION AND ADJUSTMENT

Compensation and adjustment of airborne compass and compass systems.

16 PART-66 CATEGORY B1, B2 AND C TYPE RATINGS

The requirements for the grant, variation or renewal of Aircraft Maintenance Licences are contained in Commission Regulation (EC) No. 2042/2003. It is possible to obtain aircraft type ratings in accordance with the provisions of this requirement. This includes aircraft which are listed above in paragraph 14 of this Notice and aircraft which are registered and operated in another JAA member state but which are maintained under a Part-145 approval.

The aircraft types are listed in Appendix 1 to Part 66 (AMC) and will be granted only where Part-147 approved type training has been completed to the appropriate Category B1, B2 or C syllabus and the required practical experience, if appropriate, can be demonstrated.

Current Section L licence holders will be entitled to protected rights under Commission Regulation (EC) No. 2042/2003 on existing licence and authorisation privileges. Section L group type ratings may be transferred directly onto Part-66 licences, except for purposes of reflecting continuing National privileges, identified as Annex II aircraft of Commission Regulation (EC) No. 1592/2002, where, for the time being, BCAR Section L Licences will be retained for certification purposes.

17 AIRCRAFT TYPE LISTS

Aircraft type list Commission Regulation 2042/2003 Appendix 1 AMC Part-66

Refer to www.srg.caa.co.uk

Aircraft type list Commission Regulation 1592/2002 Annex II

Refer to www.srg.caa.co.uk

18 CANCELLATION

This Notice cancels Airworthiness Notice No. 10, Issue 26, dated 28 September 2005, which should be destroyed.

AIRWORTHINESS NOTICE

No. 11
Issue 4
29 September 2006

The Rebuilding and Restoration of Aircraft**1 INTRODUCTION**

The CAA has been made aware that additional guidance is necessary for those engaged in the rebuilding or long term restoration of aircraft, to alert them to the airworthiness requirements and the monitoring of such projects by the Civil Aviation Authority Regional Offices.

2 APPLICABILITY

- 2.1 This notice is applicable to aircraft that have previously held a UK Certificate of Airworthiness or Permit to Fly.

3 DEFINITION

- 3.1 Restoration is a generic term that may include any one or combination of overhaul, repair, inspection, modification or replacement activity, which is to be performed on an aircraft where the UK Certificate of Airworthiness or Permit to Fly has lapsed for some years. Such an aircraft is likely to require extensive dismantling and inspection to determine the extent of work needed to restore it to an airworthy standard.
- 3.2 Aircraft rebuild projects include the return to an airworthy condition of any aircraft where the UK Certificate of Airworthiness or Permit to Fly has ceased to be in force due, for example, to accident or incident damage, the use of major parts from other aircraft of the same type, significant corrosion or major overhaul.

4 BACKGROUND

- 4.1 From time to time the CAA is not made aware of major restoration or rebuild projects until they have reached the final stages of completion. This means that the necessary CAA stage inspections or surveys have not been carried out.
- 4.2 In many restoration cases the necessary repairs, including the production of parts no longer available from the original manufacturer, have not used approved data such as the original manufacturer's repair manual or design drawings, and have been outside the scope of the certification privileges of the Licensed Engineer. A number of rebuild projects have used structural components and major assemblies where the provenance and traceability of the parts fitted has been questionable.
- 4.3 For aircraft which held Certificates of Airworthiness, all replacement parts must either conform to the part number specified by the manufacturer for the particular aircraft type, model and serial number, or be approved under modification procedures in accordance with BCARs or EASA Regulations, as applicable. All replacement parts from whatever source must be serviceable and accompanied by appropriate documentation.
- 4.4 In the cases described in paragraphs 1 and 2 there have been delays in the CAA approval of the project and subsequent issue of the Certificate of Airworthiness or Permit to Fly and in some cases dismantling has been required to enable inspections to take place which could have been avoided by regular contact between the Licensed Engineer (or owners) and CAA Regional Offices.

5 REQUIREMENTS

- 5.1 The attention of Certifying Engineers concerned with major rebuilding projects or the long term restoration of aircraft is directed to the relevant chapters of BCAR Section A/B, EU Regulations 1702/2002 and 2042/2003, as applicable. Reference should be made to the table below to assure compliance with the relevant regulations.

Requirement	Non EASA Aircraft	EASA Aircraft
It must be shown that the aircraft conforms to type design and any repairs and changes conform to appropriate data.	BCAR A/B3-2 Paragraph 1.3	Part 21.A.181 and 21.A.183
The aircraft must be constructed under the supervision of an organisation approved by the CAA for the purpose. The restorer or rebuilder must show proof that the major components proposed for use on the restored or rebuilt aircraft are original, i.e. were manufactured by or for the organisation who obtained the first Certificate of Airworthiness or Type Certificate for the aircraft or that they are an approved alternative. Failure to provide sufficient proof will result in the aircraft being refused either a Certificate of Airworthiness or a Permit to Fly.	BCAR A3-2 Paragraph 4	Part 145.A.42 and M.A.501
A Certificate of Release to Service shall only be issued for overhaul, repair, replacement, modification or inspection when the signatory is satisfied that the work has been properly carried out having due regard to the use of manuals, drawings, specifications and the use of calibrated tooling.	BCAR A/B6-2 Paragraph 8 and ANO 2005 (as amended) Article 16 or 17 as applicable	ANO 2005 (as amended) Article 16, 17, Part 145.A.50 or M.A.801, as applicable
In the case of structural repairs to aircraft, where the repairs are of a major nature or not covered in a particular Repair Manual, the Approved Organisation or the appropriately licensed maintenance engineer concerned, must be able to demonstrate all repairs are appropriately approved.	BCAR A/B6-7 Paragraph 2	Part 21 Sub Part M
All modifications/ changes, except those which are agreed by the CAA to be of such a nature that airworthiness is not affected, shall be approved.	BCAR A/B2-5 Paragraph 2.1.4	Part 21 Sub Part D

AIRCRAFT WITH PERMITS TO FLY

All of the above references apply to aircraft with Certificates of Airworthiness. For aircraft holding Permits to Fly, the CAA needs to be satisfied that similar standards have been achieved, including, as far as possible, reference to original drawings and data. This should include compliance with the Airworthiness Approval Note for the particular aircraft being restored (these aircraft are not accepted by the CAA as series aircraft).

6 PROCEDURES

- 6.1 In the case of a rebuilding or restoration project expected to exceed fifteen months duration, the local CAA Regional Office (see Airworthiness Notice 29 Appendix 2 for UK Regional Office addresses) must be advised of the project at the earliest opportunity. This

will allow for a preliminary assessment by a Regional Office Surveyor of the extent of the restoration work required and initial acceptance of the applicant's proposals regarding sourcing of parts and components to be used in the restoration.

6.2 Normally, if the Regional Office Surveyor decides that the restoration or rebuilding project is of such a magnitude that regular inspections will be necessary, a Special Survey will be needed. Alternatively, it may be necessary, by virtue of the extent of the rebuild or restoration required, that a major modification will be needed instead of a Special Survey to record and approve the proposed repairs or replacements. If this is the case the Regional Office Surveyor will advise the potential applicant accordingly.

6.3 An application for a Special Survey should be made by the owner to Applications and Approvals Department at Aviation House, Gatwick (see Airworthiness Notice No. 29 Appendix 1).

6.4 Following acceptance by CAA of an application for a Special Survey it will not be necessary to make an application for the subsequent issue of a Certificate of Airworthiness or the renewal of the Permit to Fly, as the case may be, until the final stages of completion unless a modification / change which has not previously been approved is to be embodied on the aircraft. In some cases it may be that following a Special Survey no recommendation can be made by the Regional Office Surveyor for the renewal of the Certificate of Airworthiness or Permit to Fly. In these cases the applicant will be advised of the reasons why the aircraft could not attain certification and any Certificate of Airworthiness or Permit to Fly fee already paid will be refunded. The cost of the Special Survey will, however, still have to be met by the applicant.

7 CANCELLATION

This Notice cancels Airworthiness Notice No. 11, Issue 3, dated 29 March 2006, which should be destroyed.



**No. 12
Issue 58
29 September 2006**

Experience From Incidents

- 1** From time to time incidents occur, usually in aircraft operations, which, in the opinion of the CAA, reflect the need for a general awareness of possible hazard resulting from practices which may have a wide general application. The purpose of this Notice is to advise all concerned, particularly design and engineering staff engaged in aircraft construction or operation, of such incidents which have come to the notice of the CAA, and where necessary to prescribe action to be taken.

- 2** New incidents will be advised in Appendices to this Notice, and the List of Current Appendices will be updated with each issue. Periodically, older appendices will be withdrawn from this Notice and, where appropriate, transferred to Civil Aircraft Airworthiness Information and Procedures (CAP 562) Part 11. List 1 below details appendices current to this Notice and list 2 details those appendices which have been cancelled or transferred to CAP 562.

LIST 1 – CURRENT APPENDICES

<i>Appendix</i>	<i>Subject</i>	<i>Issue</i>	<i>Date</i>
16	Emergency Escape Provisions – Doors and Escape Slides	3	18.03.03
61	Retention of Records - Post Incident and Accident Investigations	4	29.09.06
64	MIL-W-22759/16 Aircraft Electrical Wire	3	28.09.05
67	Mode 'S' Transponder ICAO 24-Bit Aircraft Addresses	1	21.03.05
68	Foreign Object Damage to Aircraft and Engines	2	28.09.05
69	ATC Transponders and Traffic Alert and Collision Avoidance Systems (TCAS) Ground Testing	1	28.09.05
70	Aircraft Towing and Limitations	1	29.03.06

LIST 2 – WITHDRAWN APPENDICES

<i>Appendix</i>	<i>Subject</i>	<i>CAAIP Leaflet 11-22 Appendix</i>
1	Soft Metal Shims	20-1
2	Crowded Ball Races	20-2
3	Oxygen Fire Risk	35-1
4	Flutter of Flying Control Surfaces	27-1
5	Fluids Used in Aircraft	12-1
6	Inspection in Relation to Spillage or Collection of Fluid	51-1
7	Foreign Objects and Loose Articles - Danger of Jamming	51-7
8	Brake and Anti-Skid Systems	32-1
9	Auto-pilots on Light Aircraft	22-1
10	Inspection of Critical Parts of Helicopter Gearboxes	60-1
11	Unauthorised Alteration of Parts	20-3
12	Maintenance of Radio Navigation Equipment Course and Alarm Signal Current Limits	34-1
13	Bonding of Strobe Lights	33-1
14	Security of Re-fuelling Points Caps	12-2
15	Cancelled	
17	Self-locking Fasteners	51-6
18	Ground Handling of Transport Aircraft	9-1
19	Flap Systems on General Aviation Aircraft	27-2
20	Single Path Control Systems	76-1
21	Electrical Power Supplies Light Aircraft, Care and Maintenance	24-1
22	Cancelled	
23	Altimeters in General Aviation Aircraft	31-1
24	Tyre Maintenance and Reliability	32-2
25	Ambiguous Information	4-1
26	Lock-bolt Failures	51-4
27	Stowage and Accessibility of Lifejackets	25-2
28	The Use and Interpretation of Unfamiliar Units	4-2
29	Hazards of Damage caused by Arc Burns	20-5
30	Silver Tantalum Capacitors	24-2
31	Air Intake Filters	72-1
32	Electrical Cable Failure	24-3
33	Hydraulic Fluid Contamination	20-6
34	Aged Components Permit to Fly Aircraft	5-1
35	Primary Structural Fasteners made of H-11 Steel	51-2
36	Protection of Liferrafts from Damage, after Deployment, by Sharp Projections of an Airframe	25-3
37	Single Lock Airframe Seats and Furnishing Attachments	25-1

<i>Appendix</i>	<i>Subject</i>	<i>CAAIP Leaflet 11-22 Appendix</i>
38	Molybdenum Disulphide Lubricants Effective on Turbine Engines	70-1
39	Lithium Batteries	24-6
40	Thermal Circuit Breakers	24-4
41	Effects of Chloride Based Materials on Stainless Steel and Titanium	70-3
42	Maintenance and Re-Installation of Pipes and Cable Looms	20-4
43	Helicopter Gearbox Oil Level Sightglasses	12-3
44	Battery Terminal Failure – GA Aircraft	24-5
45	Aircraft Marking and Placards	11-1
46	Corrosion Inhibiting (Temporary Protective) Compounds	51-3
47	Allison 250 Series Gas Turbine Engines	70-2
48	David Clark Isocom Intercommunication Amplifiers	23-1
49	Control of Precision Cutting Tools	51-5
50	Passenger and Crew Oxygen Systems	35-2
51	Cancelled	
52	Responsibilities of Engineers who carry out and Certify Maintenance on Aircraft	4-3
53	Planning and Recording of Non-scheduled Maintenance Tasks	5-2
54	Aircraft Windshields and Transparencies	56-1
55	Control and use of Rigging Pins	27-3
56	Damage to Packages of Dangerous Goods Caused by Inadequate Securing of Hold Floors	1-1
57	Control of the use of Pitot Head and Static Vent Blanking Covers	10-1
58	Adjustable Seat Locking Mechanisms	25-4
59	The Consignment by Air of Aircraft Spares as Cargo which Meet the Criteria of 'Dangerous Goods'	1-2
60	Fire Hazards	26-1
62	Seat Belts in Light Aircraft – Orientation of Stitched Joints	25-5
63	CAA Approval and Continued Airworthiness of the L-3 Communications Model F-800 Digital Flight Recorder	4-4
65	Control Cable End Fittings	27-4
66	Ice Falls from Aircraft	12-4

3 CANCELLATION

This issue of Airworthiness Notice No. 12 cancels Issue 57 dated 29 March 2006, which should now be destroyed.

AIRWORTHINESS NOTICE No. 12**Appendix 16***Issue 3**18 March 2003***Emergency Escape Provisions – Doors and Escape Slides**

- 1** During several emergency evacuations, difficulty has been experienced in opening aircraft doors and in deploying the associated inflatable escape slides. Subsequent investigations have shown that the difficulties were due to various reasons such as incorrect rigging of door assist mechanisms, incorrect packing of the inflatable, incorrect installation, safety pins being left in, ageing/wear of items, design shortcomings, fitment of incorrect parts. In a significant proportion of cases however, no reason for failure could be determined.
- 2** Current maintenance requirements include regular inspection, inflation checks and overhaul of the escape slide assembly. However, this may not give an indication of faults or deterioration that could result in the evacuation system not being available for its intended purpose. It is considered therefore, that slides should be tested on the aircraft by opening the doors with the slides armed and a check made to ensure that they deploy and inflate correctly as expected in an emergency evacuation. It is appreciated that this alone will not guarantee correct future operation of all slides on any particular aircraft, but it will provide a level of confidence on the reliability of slide and door operation.
- 3** For all aircraft fitted with inflatable escape slides which are automatically deployed by the opening of emergency exits, slides must be deployed as part of a slide deployment programme on the aircraft by the automatic release and inflation of the slide in accordance with paragraph 3.1 or 3.2 of this notice. It is recommended that when feasible the slide deployment should be carried out by cabin crew, in order to better replicate the emergency condition.
 - 3.1** Every slide on the aircraft should be deployed when it becomes due for overhaul in accordance with the manufacturer's recommended intervals. This period should not exceed 36 months.
 - 3.2** Operators can develop a slide deployment sampling programme, with the agreement of the CAA as part of the Approved Maintenance Programme. This programme must ensure that, on each aircraft type, a sample of at least 10 or 10%, whichever is the greater, of all the exits in the fleet, will have been deployed within an elapsed period of not more than two years. The sampling programme must ensure a reasonably uniform distribution of the exits on that aircraft type. Inadvertent slide deployments should not be included in the slide deployment sampling programme but should still be investigated if the slide fails to deploy correctly.
- 4** Details of the operators slide deployment programme should be included in the Approved Maintenance Programme or Schedule.
- 5** Every operator should define it's own pass / fail criteria which should be accepted by the local Regional Office. The pass / fail criteria should be based on any recommendations made by the aircraft or slide manufacturer and would be expected to include at least the following as failures:
 - Failure of the automatic deployment system (i.e. manual inflation required);
 - Failure of the door to fully open;
 - Door assist failure (if fitted);
 - Failure to fully inflate;

- Failure to fully inflate within 10 seconds (unless otherwise specified by the manufacturer). Timing is from when the door is initially actuated until the slide is deployed in a useable state;
- Complete failure of slide lights to illuminate

All the above failures must be reported to the authority using the mandatory occurrence reporting (MOR) scheme and to the aircraft type certificate holder.

- 6** To assist in the slide deployment failure investigation, unless otherwise agreed by the CAA, all slide deployments must be recorded by video or other similar means and copies of failed deployments should be held for a minimum of one year or until any MOR or investigation into the failure has been closed. A copy should be made available to the CAA on request.
- 7** All slide deployment failures must be investigated to determine the cause of failure and action taken to prevent similar occurrences. The type certificate holder and escape slide manufacturer should be kept informed of failure investigations and provide assistance where possible. If there are either high levels of slide failures or slide failure causes cannot be determined it may be necessary, in conjunction with the CAA to carry out further deployment tests, increase the paragraph 3.2 sampling size or remove MEL alleviation until a satisfactory level of reliability is achieved.
- 8** For each deployment test the door / slide position, slide part number, pass or fail result, date of manufacture of the slide, failure mode and failure cause should be recorded. Operators should forward a summary of slide deployment testing at regular intervals for each aircraft type to the appropriate CAA Regional Office. This summary should include the following information: Number of aircraft in fleet, number of deployments carried out and overall pass rate for fleet.
- 9** Due to the complexity and safety critical nature of escape slide systems it is recommended that Maintenance Organisations involved in the installation, maintenance and overhaul of escape slides should implement duplicate or independent inspections on critical tasks i.e. slide installation, firing mechanism connections, girt bar installation and rigging, door assist deactivation / slide safety pin removal. Consideration should also be given to the training and competence of personnel involved with the packing, installation, inspection and overhaul of escape slides.
- 10** Operators should review all escape slide continued airworthiness instructions from the type certificate holder and escape slide manufacturer including service bulletins and service letters and consider embodiment where there may be improvements in escape slide reliability.

When an Operator changes maintenance providers i.e. slide overhauler or aircraft maintenance organisation it must review the slide deployment programme to monitor the affects of such changes on the fleet escape slide reliability.

AIRWORTHINESS NOTICE No. 12**Appendix 61***Issue 4**29 September 2006***Retention of Records - Post Incident and Accident Investigations**

- 1** During an investigation into an engine failure resulting in an air turn back and emergency landing, the record keeping and retention of record period was found to be inadequate and incomplete. Considerable difficulty was experienced during the investigation in tracing the maintenance actions taken during the overhaul of the engine crankshaft which was identified as the cause of the engine failure.
- 2** Aircraft operators and maintenance organisations are reminded of their responsibility to retain adequate and complete maintenance records as specified and referenced in the following paragraphs for the periods listed.
- 3** The requirements for retention of maintenance records for EASA aircraft operated for Commercial Air Transport or Non-Commercial Air Transport are identified in Part M M.A. 305 and M.A. 306. For non-EASA aircraft the retention periods are those specified in the Air Navigation Order 2005 (as amended).
- 4** Part-145 approved maintenance organisations need only retain a copy of all detailed maintenance records for two years from the date the aircraft or aircraft component was released from the Part-145 organisation (Part-145.A.55). If contracted to keep records on behalf of the Operator then the retention period will be that required by Part M M.A. 305 and M.A. 306.
- 5** The requirements for retention of records for all other aircraft registered in the United Kingdom should be as defined in the Air Navigation Order 2005 (as amended) Article 22. This requires the Operator of the aircraft to keep Aircraft, Engine and Propeller Log Books. The Log Books must include particulars as specified in the ANO Schedule 6 which include:
 - Paragraph 1(e). Particulars of all maintenance work carried out on the aircraft or its equipment.
 - Paragraph 1(g). Particulars of any overhauls, repairs, replacements and modifications relating to the aircraft.Also note that any document which is incorporated by reference in a log book shall be part of the log book and it is the duty of the Operator to keep the above records. Every Log Book shall be preserved by the Operator of the aircraft until 2 years after the aircraft has been destroyed or has been permanently withdrawn from use.
- 6** Consequently, if a Part-145 approved maintenance organisation carries out work (overhaul, inspection, repair, modification or replacements) on an aircraft NOT operated in accordance with JAR-OPS, then the record retention requirements are as required by the Air Navigation Order.

AIRWORTHINESS NOTICE No. 12**Appendix 64***Issue 3**28 September 2005***MIL-W-22759/16 AIRCRAFT ELECTRICAL WIRE****1 BACKGROUND**

Electrical wires meeting the MIL-W-22759/16,17,18 and 19 specifications have a single non-cross linked ETFE extruded insulation.

Although not generally recommended by large aircraft manufacturers, this type of wire construction is and continues to be in widespread use within the aircraft industry. The acceptability of this wire type is referenced in a number of industry and regulatory documents, e.g. FAA AC 43.13-1B, FAA Policy Memorandum Ref No.PS-ACE100-2004-10023 and SAE AS50881.

Although this wire can be suitable for a wide range of applications it is recognised that there are a number of performance limitations with this type of wire construction that should be reviewed before the wire can be assessed as suitable for use in a specific application.

2 LIMITATIONS

The following are known performance limitations:

- (a) The insulation of this wire type can lose its mechanical properties (begin to melt) when the wire is subjected to high fault currents or is influenced by an external heat source.
- (b) The single extrusion insulation provides limited protection against the propagation of insulation surface damage through to the conductor. Cracks and nicks can readily propagate through to the conductor.

NOTE: Generally, modern approved airframe wires have two or more insulation layers specifically to provide stress relief protection against the propagation of insulation surface damage through to the conductor.

- (c) Non-crosslinked ETFE insulation may not meet expected abrasion or cut-through performance levels, e.g. EN3475-503.
- (d) Although the flammability test method described in MIL-W-22759/16,17,18,19 provides a good assessment of the flame characteristics of this wire, the test method does not exactly correlate to the 60° flame test in the Certification Specifications (e.g. CS25), which is necessary to show compliance.

3 DISCUSSION

Aircraft equipment should always be assessed for its suitability for use (fit for purpose) and compliance with the relevant certification requirements. The use of this type of wire is not automatically acceptable for the reasons stated above. Particular care must therefore be taken when selecting this wire type to ensure that it meets all installation and regulatory requirements and is fit for its intended application.

4 REQUIREMENT

Users of MIL-W-22759/16,17,18,19 wire and similar wire constructions shall determine the following specific data and information for each application of the wire to demonstrate compliance with the applicable airworthiness requirements:

- (a) The installation of the wire shall be assessed as appropriate to its intended application and environment. The proximity of external heat sources shall be considered in particular.

When selecting wires that are different to the existing manufacturer's installed wiring, the performance characteristics of the existing wiring and the new wiring shall be compared and any differences shall be determined as acceptable.

- (b) The wire must be kept within acceptable operating parameters that accommodates the circuit protection levels, as well as environmental and circuit heating. (Note: it is undesirable to allow a temperature rise due to electrical heating of more than 40°C above ambient).
- (c) The installation design shall mitigate the abrasion hazard to the cable insulation. It shall also be established that the cable is compatible with other wire constructions in the same bundle.
- (d) It shall be shown that the wire type to be used meets, as a minimum, the appropriate airworthiness fire test requirements (e.g. CS 25.869 (a)(4), Appendix F Part 1(a) (3), CS23.1359 (c) Appendix F, CS27.1365(c), CS29.1359(c) etc.)
- (e) The design assessment of the wire selection shall establish any maintenance or inspection procedures with appropriate intervals to ensure the continued airworthiness of the wire insulation, as appropriate.

AIRWORTHINESS NOTICE No. 12**Appendix 67***Issue 1**21 March 2005***MODE "S" TRANSPONDER ICAO 24-BIT AIRCRAFT ADDRESSES**

- 1** CAA have become aware of incorrect 24-bit addresses being installed/hard wired on individual aircraft. This has happened not only on first installation of a Mode S transponder but also when a modification has been made or following a change of State of Registration. Incorrect installation, such as setting the address to all zeros or inadvertent duplication of an address, can pose a risk to flight safety. In particular, the airborne collision avoidance system (ACAS) operates on the assumption that only a single, and therefore unique 24-bit aircraft address exists per airframe. The performance of ACAS can be seriously degraded and in some cases disabled if an incorrect or duplicate address is installed on an aircraft.
- 2** ICAO has recognised that the present management methodology of aircraft 24-bit addresses presents a genuine safety hazard that needs to be addressed and suitably mitigated in any system that is to make use of the Mode S address. CAA have issued AIC 94/2004 (yellow 151) dated 14 October 2004 in order to make the operating community aware of this issue. This appendix to Airworthiness Notice No. 12 is published to make the maintenance community similarly aware as it affects them.
- 3** In order to ensure that the 24-bit Mode S address is installed correctly at the time of initial CAA certificate of airworthiness issue, as well as throughout the in-service life of the aircraft and at the time it leaves the UK register, the following should be accomplished:
 - (a) A positive check that the correct Mode S address is assigned for each transponder installed on the aircraft.
 - (b) The correct Mode S address is periodically confirmed for each transponder installed on the aircraft, via a field test set at an appropriate maintenance opportunity (not to exceed a 2 year periodicity). This task should be incorporated into the Approved Maintenance Schedule or Programme.
 - (c) Ensure whenever the aircraft is subject to modification that the Mode S address has not been changed.
 - (d) The UK assigned Mode S address is removed when the aircraft leaves the UK register.
- 4** Operators are requested to review their documented procedures and update them, as appropriate, to ensure the above points are addressed. These procedures should also include a method to record that the applicable actions have been accomplished.
- 5** Reference should also be made to CAP 562 - Civil Aircraft Airworthiness Information and Procedures (CAAIP) Leaflet No. 9-5 which contains advice on testing criteria for Transponders.

NOTE: With the introduction of Mode S Elementary and Enhanced Surveillance functionality, within the transponder, it is envisaged that additional testing of the transponder will be required on a periodic basis (not to exceed 2 years). Notification of revised testing requirements will be included in a future issue of CAAIP Leaflet No. 9-5.

AIRWORTHINESS NOTICE No. 12**Appendix 68***Issue 2**28 September 2005***FOREIGN OBJECT DAMAGE TO AIRCRAFT AND ENGINES****1 BACKGROUND**

1.1 The CAA continues to receive reports of damage to aircraft and engines caused by foreign objects (FOD). Foreign object damage presents a serious airworthiness threat to any aircraft not to mention the economic impact on the operator. In extreme cases, FOD can lead to an accident and loss of life. FOD damage to airframes and engines can be extremely expensive to rectify and may result in the aircraft being removed from revenue service for significant periods of time. There are numerous reports on record of FOD damage to engines (in particular rotating assemblies), nose and main landing gear assemblies and aircraft structure.

1.2 Recent audits of airports, including a 10-month study at one major UK international airport, have revealed that a continuing threat exists from varying amounts of FOD present on aircraft maintenance areas and airport-manoeuving areas, including stands, aircraft taxiways and runways. The study showed the aircraft themselves as the main cause of FOD on the runway and this poses the highest immediate risk. Here, parts of aircraft become detached or tools and equipment, inadvertently left in the aircraft fall out during take off or landing. The largest item found on a runway was a wheel chock but metal panels and honeycomb structure were also amongst the larger items. The FOD found on taxiways and stands came mainly from airport vehicles and the equipment they tow such as baggage trolleys, steps, cargo equipment etc. The size and shape of some of this FOD makes it likely to cause tyre damage and subsequent tyre burst. The cleaning of aircraft cabins and the transfer of waste from cabin to airside rubbish containers is also seen to be a common source of FOD in the stand areas. Other typical FOD consists of such items as oil cans, spanners, pliers, engineers torches, suitcase items (both internal & external), mobile radios, aircraft catering equipment, cutlery, landing gear ground lock pins, thrust reverser lock-out pins and broken parts of ground servicing equipment/vehicles.

1.3 Smaller items could be ingested by an engine. In many cases, FOD damage to engine rotating assemblies has led to vibration leading to air turn-backs, diversions and subsequent engine replacement. Boroscope inspections of engines following reports of engine surging very often reveal internal damage to the engine – such damage can of course be very expensive to repair. Typically, damage to the aircraft can range from damage to horizontal stabilizer leading edges to pressure hull penetration by objects thrown up from the runway, to varying degrees of damage to landing gear assemblies and main-planes. It is not unusual for tyre treads (nose & main) to detach as a result of FOD damage during take-off and landing causing damage to the fuselage, wings, trailing edge flaps, lift dumpers, engine intakes and compressors. Tyre tread detachment often occurs within several takeoffs / landings of an earlier penetration of the tread by an item of FOD. It is known that in some cases aircraft have been lost due to FOD damage to tyre assemblies and has lead to significant loss of life.

2 OPERATOR, MAINTENANCE AND GROUND HANDLING ORGANISATION RECOMMENDED BEST PRACTICE

2.1 Aircraft operators should not allow their aircraft to be positioned onto arrival / departure stands unless satisfied that the stand is clean and free from FOD. Operators should consider the implementation of procedures whereby its staff or contracted ground handling personnel check parking stand cleanliness standards prior to aircraft arrival on stand and again following its departure from stand prior to being occupied by the next aircraft.

- 2.2 Aircraft operators should ensure that the topic of FOD is placed as a standing agenda item on all airport users committee meetings that it attends and internal airline safety meetings as necessary in order that the topic is adequately covered and remains visible at all times. It is suggested that operators may wish to nominate an individual with responsibility for the implementation of the airline's policy in this area.
- 2.3 Aircraft operators and maintenance organisations should implement procedures that would preclude tools, inspection equipment or other service items being left in the aircraft installations following routine or unscheduled maintenance (e.g. undercarriage bays, engine intakes) and/or at the airport areas where the work took place.
- 2.4 Airport authorities and maintenance organisations should ensure that adequate cleaning/ sweeping programmes are in place for those aircraft ramp and maintenance areas under their control. Airport authorities and maintenance organisations should provide sufficient numbers of strategically positioned FOD bins that should be readily visible and placarded as to their use.
- 2.5 Aircraft operators, maintenance and ground handling organisations should include FOD in their induction and continuation training programmes. For example, the practice of putting chocks and other loose equipment on aircraft tugs in positions from where it can fall unnoticed should be discouraged.
- 2.6 Aircraft operators and maintenance organisations should consider the inclusion of FOD into their ramp area audits ensuring that where problems exist that the persons responsible are notified without delay. Where FOD is a persistent problem and no effort is made to rectify the problem, consideration should be given to reporting matters to the CAA's Aerodrome Standards Department.
- 2.7 Aircraft operators should ensure that contracted aircraft cleaning and ground handling organisations are made aware of its policies regarding the prevention of FOD during cabin cleaning and ground handling operations. This should include the condition of vehicles and the quality of repairs made to them.
- 2.8 Some aircraft types are permitted to back off the stand using high power reverse thrust settings. Operators of such types are reminded that these operations can be susceptible to FOD. Operators carrying out such operations should ensure that they are only carried out in accordance with manufacturer's recommendations and from clean, contamination free ramp areas.

REMEMBER THE ONLY ACCEPTABLE FOD IS NO FOD!

AIRWORTHINESS NOTICE No. 12**Appendix 69***Issue 1**28 September 2005***ATC TRANSPONDERS AND TRAFFIC ALERT AND COLLISION AVOIDANCE SYSTEMS (TCAS) GROUND TESTING****1 INTRODUCTION**

This Notice is to provide general guidance material to aircraft maintenance organisations and maintenance personnel relating to ATC Transponder and Traffic Alert and Collision Avoidance Systems (TCAS). It includes information on the TCAS system together with precautions to be considered when ground testing ATC Transponders in order to minimise the possibility of causing nuisance advisory warnings on TCAS equipped aircraft.

2 GENERAL

A number of aircraft operating within airspace regulated by the United Kingdom are now equipped with TCAS. This equipment provides flight deck crew with an independent back-up to visual search and the ATC system by alerting them to potential collision hazards. In the case of the more sophisticated systems which predominate in number, the equipment provides advice to the flight deck crew on how best to manoeuvre so that adequate separation may be maintained or achieved between potentially conflicting aircraft.

3 SYSTEM DESCRIPTION AND OPERATION – TCAS II

3.1 TCAS comprises a dedicated computer unit with associated aerials. Visual and voice advisories are provided for the flight deck crew.

3.2 The TCAS computer requires the presence of a mode S transponder which provides a data link between TCAS equipped aircraft. Sensor inputs to TCAS include radio height and pressure altitude.

3.3 TCAS can provide two distinct forms of advisory information to the flight deck crew, Traffic Advisory (TA), and Resolution Advisory (RA).

(a) Traffic Advisory (TA), is aural and visual information provided in the cockpit to advise the flight deck crew as to the position of a potential threat aircraft.

(b) Resolution Advisory (RA), is aural and visual information provided in the cockpit to advise the flight deck crew that a particular manoeuvre should, or should not, be performed to maintain safe separation from a threat aircraft.

NOTE: Resolution Advisories can not be produced if a potential threat aircraft does not provide altitude information.

3.4 TCAS equipped aircraft operate by interrogating the mode S or mode A/C transponders in proximate aircraft. The replies from mode S and mode C transponders are tracked in range, bearing and altitude. This data is passed on to the system logic for TA and RA processing and display.

3.5 Mode A/C transponders which are not equipped with an altitude encoder or when the altitude reporting is switched off, reply with no data in the altitude field, therefore, the TCAS will track in range and bearing only. This information is passed to the collision avoidance logic for TA detection and display.

4 TESTING CONSIDERATIONS

4.1 Recognising that airborne TCAS aircraft operate by interrogating operational transponders, it is apparent that they will elicit replies from transponder equipped aircraft on the ground if they are in range and the equipment switched on.

- 4.2 This, therefore, presents the possibility that a ground operated transponder may trigger a nuisance advisory on a TCAS equipped aircraft operating in the close vicinity. If the ground target is providing altitude data the TCAS logic should declare the aircraft to be on the ground and ought not to generate an advisory.
- If no altitude data is provided the TCAS will generate a TA if the threat criteria are met. If the ground is providing altitude data other than surface altitude, as may happen with a defective altitude encoder, or if a test pressure is being applied to the altitude encoder, the TCAS may generate both a TA and a RA if the threat criteria are met.
- 4.3 Maintenance organisations and personnel who are involved in the ground testing of transponders and TCAS equipment are requested to establish procedures and take precautions to ensure that the risks of causing nuisance advisories are recognised and kept to a minimum.
- 4.4 It is considered that nuisance advisories may be caused to any TCAS equipped aircraft flying in the vicinity of transponders which are being tested, this may also include aircraft passing overhead at medium altitudes. The problem may be more noticeable where ground testing of transponders takes place at airfields located beneath Terminal Control Areas or in the vicinity of Control Areas and Zones where air traffic movements are likely to be numerous.
- 4.5 The following advice is provided to minimise the possibility of causing nuisance advisories to TCAS equipped aircraft when ground testing transponders and/or TCAS:
- (a) When not required ensure that transponders are selected to 'OFF' or 'Standby'.
 - (b) For transponders under test, when equipped for altitude reporting, set the control unit to 'Mode A/C' and select Altitude Reporting 'ON'.
 - (c) Where possible, carry out testing inside a hangar to take advantage of any shielding properties it may provide.
 - (d) Always use the antenna transmission absorption covers when these are provided with the test set.
 - (e) When testing mode C operation which require the altitude to be increased, radiate directly into the ramp test set via the prescribed attenuator.
 - (f) In between test parameters, select the transponder to the standby mode.
 - (g) The simulation of TCAS operation by the radiation from an antenna located on, or remotely based from a workshop, is not permitted.

NOTE 1: The FAA have advised their staff of operational problems resulting in nuisance advisories caused by ground based transponders installed on hangars for the purpose of testing TCAS installations. Maintenance organisations are reminded that all UK aeronautical radio stations are required to be licensed by the Department of Trade and Industry and the CAA.

NOTE 2: Air Traffic Control Units may be advised when testing is to be carried out if it is considered that there is a possibility of nuisance advisories being caused by the activity due to its proximity to operational runways.

AIRWORTHINESS NOTICE No. 12**Appendix 70***Issue 1**29 March 2006***AIRCRAFT TOWING AND LIMITATIONS**

- 1** The CAA has been made aware of an incident in which an aircraft sustained structural damage to the nose landing gear to fuselage mounting structure. It is believed that a causal factor in this incident was that ground movement of the aircraft had been undertaken using a hydraulically powered "towbarless" tug and not ensuring that this was accomplished in accordance with the appropriate aircraft manufacturers' instructions.
- 2** Aircraft manufacturers are required, in accordance with type Certification Specifications, to publish Servicing Information. This servicing information must contain, amongst other things, equipment required for servicing and towing instructions and limitations.
- 3** Operators/owners and their maintenance and ground service providers are obliged to comply with all the applicable aircraft manufacturers' instructions in order to ensure the continued airworthiness of their aircraft.
- 4** By publication of this Appendix to Airworthiness Notice No. 12 the CAA would like to remind all operators/owners that when their aircraft is towed by either themselves or a third party they take the necessary steps to make sure the above obligations and practices are adhered to.

AIRWORTHINESS NOTICE

No. 13
Issue 4
29 September 2006

State Aircraft**1 INTRODUCTION**

- 1.1 The European Aviation Safety Agency (EASA) regulations relating to airworthiness certificates have been in force since 28 September 2004. From this date the majority of aircraft which currently hold a UK Certificate of Airworthiness (CofA) issued in accordance with the Air Navigation Order (ANO) are now "EASA aircraft". Their current certificates are deemed to be EASA Certificates of Airworthiness by the legislation. These aircraft will be issued with EASA Certificates of Airworthiness (in accordance with Council Regulation (EC) No. 1592/2002 and Commission Regulation No. 1702/2003, Annex I, Part 21, Sub Part H), upon the expiry of their current UK CofA.
- 1.2 Article 1, Paragraph 2 of Regulation (EC) No. 1592/2002 states: "This Regulation shall not apply when products, parts, appliances, personnel and organisations are engaged in military, customs, police or similar services".
- 1.3 The Civil Aviation Authority (CAA) does not have editorial control over EU/EASA legislation and so is not in a position to give an authoritative interpretation of its meaning. Pending the publication of any explanatory material by EASA or another authoritative body, the UK interpretation of the legislation is set out below.

2 INTERPRETATION

- 2.1 An effect of the EU legislation is that UK civil-registered aircraft that are engaged in military, customs, police or similar services have been considered to be State aircraft since the 28 September 2004. The UK interpretation of Article 1(2) of Regulation EC No. 1592/2002 is that a State aircraft is:
- (a) Any aircraft engaged in the service of the UK Ministry of Defence; or
 - (b) Any aircraft engaged in the service of a Chief Officer of Police; or
 - (c) Any aircraft engaged in the service of HM Revenue and Excise; or
 - (d) Any aircraft engaged in the service of the UK Government to safeguard national security.
- 2.2 When applied to UK aircraft, the UK interpretation means that aircraft engaged in the following activities are excluded from EASA and are regulated nationally: Police, Revenue and Excise, Military (including training, target towing/simulation for the Military), plus any other activity necessary for national security.
- 2.3 Conversely, this UK interpretation also means that aircraft engaged in the following activities, amongst others, are not excluded from regulation by EASA under Article 1(2) of Regulation (EC) No. 1592/2002: Coastguard (a rescue service), fisheries patrol, air-sea rescue, Helicopter Emergency Medical Service (HEMS), environmental protection, calibration of aids to navigation/landing and recreational gliding or recreational parachuting even if the participants are military personnel.
- NOTE:** Council Regulation (EC) No. 1592/2002 Article 4(2), Annex II additionally identifies categories of aircraft that remain subject to national regulation regardless of the purposes they are used for.

3 NATIONAL AND EASA CERTIFICATES OF AIRWORTHINESS

3.1 Consistent with EU legislation, EASA aircraft must be issued with EASA airworthiness certificates (under Part 21) and aircraft that are used for State purposes should have certificates issued under national legislation. Therefore a change of use of a particular aircraft can require a change of certificate. To allow for the urgent use of a commercial aircraft for State purposes the CAA has published a general exemption in the Official Record (OR4 – Miscellaneous) to allow any UK-registered aircraft with an EASA Certificate of Airworthiness to be used for State purposes, subject to the conditions of the exemption.

NOTE: The exemption cannot be used if the aircraft is to be modified to perform the State role, unless the modifications are approved by EASA. If the modifications are not EASA-approved, they must be approved by the CAA and the aircraft must have a CAA Certificate of Airworthiness issued under national legislation.

3.2 Aircraft owners/operators are responsible for ensuring that their aircraft hold the appropriate airworthiness certificates, having regard to the nature of their operations. If any aircraft is used for State purposes and the general exemption does not apply, a UK national Certificate of Airworthiness must be obtained from the CAA.

4 THE RIGHT TO INTERNATIONAL FLIGHT

The International Civil Aviation Organisation (ICAO) addresses aircraft used in military, customs and police services in the Convention on International Civil Aviation and such aircraft are deemed to be State aircraft. The Convention is not applicable to State aircraft, and operators are not entitled to cross national boundaries unless they have the prior permission of the country they wish to over fly and/or land in.

5 CONTINUING AIRWORTHINESS OVERSIGHT

Council Regulation (EC) No. 1592/2002, Article 1, Paragraph 2 also requires that:

“The Member States shall undertake to ensure that such services have due regard as far as practicable to the objectives of this Regulation”.

The continued airworthiness oversight of State aircraft by the CAA will be aligned with the requirements and procedures which would be applicable had the aircraft qualified for an EASA, Part 21, Sub Part H, C of A. The principal elements for CAA oversight are as follows:

- (a) State aircraft must be of a type approved by EASA or the CAA for the issue of a Certificate of Airworthiness.
- (b) The continuing airworthiness of any State aircraft will be managed in accordance with procedures equivalent to the requirements for public transport (Air Navigation Order 2005 (as amended) Article 14, CAP 360 Part 2 or JAR-OPS Subpart M and from 28 September 2005, EASA Part M Subpart G as applicable).

NOTE: The meaning of public transport is as defined in Article 157 of the Air Navigation Order 2005 (as amended).
- (c) Maintenance of a State aircraft is to be undertaken by an organisation holding approval for the type.
- (d) The certification of maintenance for a State aircraft is to be carried out by personnel licensed/authorised in accordance with the provisions of Airworthiness Notice 14.
- (e) State aircraft are to be maintained in accordance with a maintenance schedule/ programme approved by the CAA.
- (f) State aircraft with national Certificates of Airworthiness will be subject to an annual or triennial CofA renewal process as applicable, undertaken by an organisation holding a BCAR A8-3 Supplement 2 approval or a BCAR A8-15 approval. State aircraft with EASA Certificates of Airworthiness will be subject to EASA review procedures.
- (g) State aircraft are to be operated in accordance with a flight manual, the content of which has been approved under the type certificate, supplemental type certificate or CAA approved modification procedure. Any changes to the flight manual must be

approved by the CAA, or alternatively approved by EASA and accepted by the CAA, in accordance with Part-21 or BCAR Chapter A2-5 or B2-2 paragraph 7 as appropriate.

- (h) Changes (modifications and repairs) to State aircraft must be approved by the CAA, or alternatively approved by EASA and accepted by the CAA, in accordance with Part-21 or BCAR Chapter A2-5 or B2-2 paragraph 7 as appropriate.

NOTE: Modifications to install special role equipment not possessing civil approval will need to be assessed and substantiated as being of no hazard to the aircraft. Operational performance of such modifications will not be evaluated other than to assess the effect on aircraft safety.

- (i) All parts and appliances to be used on State aircraft, except special role equipment with no civil approval, are to be maintained by an approved maintenance organisation. Special role equipment shall be maintained in accordance with the manufacturer's recommendations.
- (j) State aircraft must remain in compliance with Airworthiness Directives, mandatory modifications, inspections and changes to approved documentation applicable to the type as specified in CAP 747 as amended.

6 CANCELLATION

This issue of Airworthiness Notice No. 13 cancels Issue 3, dated 29 March 2006, which should now be destroyed.

AIRWORTHINESS NOTICE

**No. 14
Issue 17
29 September 2006**

Approval of Organisations for Maintenance of Aircraft and Components, and CAA Part-145 Implementation

- 1 PURPOSE** The purpose of this Airworthiness Notice is:
- 1.1 To provide guidance to UK industry on CAA approval policy with respect to Part-145 approval of maintenance organisations engaged in the maintenance of aircraft used for Commercial Air Transport or in the maintenance of components to be fitted to such aircraft; and
- 1.2 To set out CAA policy concerning national maintenance approvals and requirements relating to aircraft NOT used for Commercial Air Transport and relating to maintained components to be fitted to such aircraft.
- NOTE:** 1) For the purpose of this Notice, 'Maintenance' means any one or combination of Overhaul, Repair, Inspection, Modification or defect rectification of a component.
- NOTE:** 2) The acceptance of new components intended for installation in aircraft issued with a UK Certificate of Airworthiness by the UK CAA, irrespective of whether the aircraft is or is not used for Commercial Air Transport, is addressed in Airworthiness Notice No. 17.
- 2 INTRODUCTION**
- 2.1 Part-145 covers the approval of organisations engaged in the maintenance of aircraft or aircraft components used for Commercial Air Transport. This regulation will also apply to all large aircraft, regardless of use, from 28 September 2008. Part-145 and the Acceptable Means of Compliance and Guidance Material is available on the EASA Website. For details of other maintenance related EASA regulations and their implementation within the UK refer to Airworthiness Notice No 7.
- NOTE:** For the purpose of this regulation a "large aircraft" means an aeroplane with a maximum take-off mass of more than 5700 kg, or a multi-engine helicopter.
- 2.2 Organisations approved by the CAA to Part-145 will have details of their approval, including their name and address, listed in CAP 475 available from the CAA website. Part-145 Approvals granted to organisations by EASA or competent authorities within the EU member states will be recognised without further technical requirements or evaluation by other EU competent authorities.
- 3 CAA APPROVAL POLICY FOR PART-145 REQUIREMENTS**
- 3.1 Part-145 came into effect on 29 November 2003 for the maintenance of all aircraft when used for Commercial Air Transport (CAT). During the transition period JAR-145 approved organisations were deemed to be Part-145 approved organisations and were permitted to continue to issue a JAR-145 certificate of release to service until 28 November 2004. From that date the certificate of release to service (CRS) required after maintenance of an aircraft or an aircraft component used for Commercial Air Transport, can only be issued by an organisation appropriately approved in accordance with Part-145 by an EU Member State competent authority or by EASA.
- NOTE:** 1) Organisations issued with approvals by JAA full member states outside of the EU may be issued with an EASA Part-145 approval that will allow them to issue an EASA Form 1 certificate of release to service that is acceptable for a UK registered aircraft.

NOTE: 2) It is incumbent upon UK organisations placing maintenance work with other approved organisations to confirm the validity of that 'approval' as they can be provisionally suspended for those organisations that do not maintain the required standards. Reference should be made to CAP 475 and EASA lists of approved organisations.

3.2 Organisations located outside the EU, and actively providing or intending to provide commercial air transport maintenance services for UK Operators or Maintenance Organisations, may apply to EASA for the grant of a Part-145 approval.

4 CERTIFYING STAFF

4.1 Organisations applying for Approval under Part-145 for the maintenance of aeroplanes or rotorcraft with a Maximum Take-Off Mass (MTOM) of 5700 kg and above used for Commercial Air Transport will be required to demonstrate to the CAA that they employ, in accordance with the requirements of Part-145.A.30, a sufficient number of appropriately qualified certifying staff who hold:

- (a) Part/JAR-66 full licences in the appropriate category or sub-category issued by an EU Member State competent authority including where appropriate the relevant aircraft type ratings, or
- (b) Part/JAR-66 restricted licences in the appropriate category or sub-category issued by an EU Member State competent authority including where appropriate the relevant aircraft restricted type ratings, or
- (c) Evidence of 'protected rights' to hold the appropriate type authorisation under the provisions of JAR 66.1 based upon licences, qualifications and authorisations held prior to 1 June 2001. All organisations should hold a list of authorised certifying staff as at 1 June 2001 to reflect the 'protected rights' entitlement made available for review when requested by the CAA.

NOTE: 1) A JAR-66 licence issued by a full member JAA-NAA prior to 28 November 2003 is deemed to be a Part-66 licence and is therefore considered acceptable for the issue of a certifying staff authorisation .

NOTE: 2) Part- 66 introduces a new effective date after which application may only be made for the issue of a Part- 66 licence but recognises existing JAR-66 issued licences as being equivalent until next renewal. Part-66 also revised the deadlines associated with the transition and this has impacted upon both the ultimate validity of 'protected rights' based upon national provisions and when transfer to a Part-66 licence must be made. Organisations must therefore be careful about ensuring their staff are aware of these changes in order that authorisations remain valid.

NOTE: 3) Extensions for type authorisations to existing 'protected rights', based upon Section L licences and previous CAA authorisation policy (BCAR A8-13), must meet the relevant type training requirements as appropriate; except that all type training carried out after 1 June 2001 must be carried out by a Part/JAR-147 approved organisation unless agreed otherwise by the CAA. The scope of the authorisations may not be extended without first meeting the additional requirements for the issue of a full Part/JAR-66 basic licence.

NOTE: 4) Extensions for type authorisations to existing 'protected rights', based upon the qualifications, licences or the National practices of another EU Member state competent authority must be made in accordance with the relevant requirements of that state.

NOTE: 5) Organisations must ensure that care is taken in determining what training must be undertaken to extend any authorisation held, since even with restricted Part/JAR-66 licences the imposed limitations endorsed by each NAA may differ.

4.2 Organisations holding or applying for Approval for the maintenance of Airships must meet the relevant requirements of BCAR Section A, A8-18 and its associated supplements. Certification authorisations will, until such times as appropriate provision for Airship licences has been incorporated into Part-66, be based upon BCAR Section L, Category 'A and C' airship LWTRs. Unless agreed otherwise by the CAA, type training will be required to be conducted by a suitably approved Part-147 organisation.

4.3 Organisations holding or applying for Approval for the maintenance of aircraft with a MTOM less than 5700 kg will be required to demonstrate to the CAA that they employ a sufficient number of certifying staff, who hold the appropriate type rated licences issued under BCAR Section L or Part-66, to be authorised to issue certificates of release to service for all required maintenance. Existing authorisation schemes may continue to be used until further notice.

- 4.4 Organisations holding or applying for Approval for the maintenance of aircraft components intended for fitment to aircraft used for Commercial Air Transport, are required to demonstrate to the CAA that they employ sufficient numbers of certifying staff (Part 145.A.30(d)), who are qualified by the organisation to issue an EASA Form 1 (Certificate of Release to Service) on the basis of appropriate competence, training and experience.

NOTE: 1) If component maintenance is required which is outside the scope of work of a Part-145 'A' rated organisation, it must be Released to Service by an appropriately Part-145 'B', 'C' or 'D' rated organisation. When a Part-145 'B', 'C' or 'D' rated organisation performs maintenance on components fitted to an aircraft during Base or Line maintenance, the Certificate of Release to Service must be issued on an EASA Form 1 by appropriately authorised component certifying staff. The process for controlling such work on components fitted to aircraft must be in accordance with a procedure contained in the Maintenance Organisation Exposition (MOE).

NOTE: 2) It is the intention of EASA to include requirements for qualification standards for certifying staff involved in component maintenance in a future amendment to Part-66.

5 CAA APPROVAL POLICY FOR NATIONAL REQUIREMENTS

- 5.1 Until the full implementation of Part 'M' in September 2008 organisations which are solely engaged in the maintenance of aircraft not exceeding 2730 kg Maximum Take-Off Mass which are NOT used for Commercial Air Transport, may continue to be approved, or may apply for the grant or variation of an approval, in accordance with the requirements of BCAR Section A Chapter A8-15. An approval granted under this requirement would be a CAA 'National' approval.
- 5.2 Organisations which are engaged in the maintenance of aircraft exceeding 2730 kg Maximum Take-Off Mass which are NOT used for Commercial Air Transport will be subject to the appropriate BCAR Maintenance Approval Group Requirements under BCAR Chapter A8.
- 5.3 Organisations engaged in the maintenance of components for which there is no intended use for Commercial Air Transport may also apply for Approval in accordance with these Requirements (see 5.1 and 5.2).
- 5.4 Application for changes/variations to existing maintenance approvals granted under BCAR Sub-section A8 will continue to be accepted by the CAA from organisations where Part-145 approval is not necessary.
- 5.5 The CAA is adopting Part-66 as the basis for qualifying Maintenance Certifying Staff working outside of a Part-145 Organisation, replacing current licensing arrangements under BCAR Section L. Such provision has already been made for the issue of new licences in respect of aeroplanes and rotorcraft (helicopters). The requirements for BCAR Maintenance Approval Group Requirements under BCAR Chapter A8 will also be reviewed and amended accordingly.

6 CAA APPROVALS

- 6.1 Organisations which hold Part-145 Approval or an appropriate CAA National Maintenance Approval may continue to be granted these terms of Approval if they meet the appropriate requirements. There are a number of functions which can be covered by a CAA Approval that are not as yet addressed by EASA Requirements. These functions include (but are not limited to) the following:
- To issue Certificates of Maintenance Review in accordance with Article 14 of the Air Navigation Order 2005 (as amended) when required.
 - To issue certificates of release to service in accordance with Article 16 of the Air Navigation Order 2005 (as amended) when required.
NOTE: This Approval relates to the certification of work on aircraft and/or components NOT used for Commercial Air Transport.
 - To issue Certificates of Fitness for Flight in accordance with the provision of BCAR Chapter A/B 3-8, ('A' Conditions) and to issue a flight release certificate for an EASA Permit to Fly.
 - To perform Star Inspections in accordance with BCAR A/B 3-4.

- (e) To furnish reports to the CAA in accordance with Article 165 of the Air Navigation Order 2005 (as amended) in respect of:
Assessments and recommendations for the Renewal of the Certificate of Airworthiness for aircraft as defined in the Maintenance Organisation Exposition, as Approved in accordance with BCAR A8-15, or as Approved in accordance with BCAR A8-3.
- (f) To amend Maintenance, Overhaul, Repair Manuals and Wiring Diagrams in accordance with BCAR A/B 5-3.
- (g) Control of Welders Approvals.

7 MAINTENANCE OF AIRCRAFT – NON COMMERCIAL AIR TRANSPORT

7.1 Aircraft which are not being used for the purposes of Commercial Air Transport may continue to be maintained by organisations approved by the CAA for the purpose or by appropriately licensed aircraft maintenance engineers in accordance with the privileges accorded to the licence holder (see Airworthiness Notice No. 3 and 10).

NOTE: It is acceptable to use a UK CAA issued Part/JAR-66 licence which is appropriately type rated to certify for UK registered aircraft which are NOT used for commercial air transport and outside of a Part-145 organisation where, so permitted, by the licence and Airworthiness Notice No. 3. Aircraft specified in CAA Airworthiness Notice No. 10, paragraph 14, must be maintained by a Part-145 approved maintenance organisation irrespective of the purpose for which they are used.

7.2 An organisation currently approved to **BCAR Chapter A8-15** whose activities are limited to C of A renewal recommendations and maintenance of aircraft NOT used for Commercial Air Transport may continue to be approved in accordance with BCAR Chapter A8-15 until 28 September 2008.

7.3 Aircraft on the UK Register, which are NOT used for Commercial Air Transport, may have components fitted which have been released to service in accordance with Part-145.

7.4 The person issuing the certificate of release to service for the fitting of a component to an aircraft on the UK register is responsible for ensuring that the records of that component are sufficient to enable its maintenance and operating history to be established, including the embodiment of modifications and mandatory ADs, service life used etc.

8 MAINTENANCE OF AIRCRAFT WHEN CHANGING FROM ANY NON COMMERCIAL OPERATION (NON-CAT) TO COMMERCIAL AIR TRANSPORT OPERATION (CAT)

8.1 Aircraft maintained in accordance with paragraph 7.1 will require release to service by an appropriately approved Part-145 organisation, prior to the aircraft being used for Commercial Air Transport. The release to service may, for example, be in accordance with the alignment check required to transfer the aircraft from the current aircraft maintenance programme to the Commercial Air Transport operator's CAA approved maintenance programme.

NOTE: 1) For aircraft of 2730 kg and below, the maintenance checks for this alignment shall be at minimum, but not limited to, a 100 hour check for helicopters or a 150 hour check for aeroplanes in accordance with the LAMS or the approved alternative CAA approved maintenance schedule.

NOTE: 2) For aircraft above 2730 kg the Maintenance Check content for alignment shall be agreed by the CAA to be of sufficient depth to provide a satisfactory level of assurance of airworthiness.

NOTE: 3) A Part-145.A.50 CRS will be issued on completion of an alignment check as required above.

NOTE: 4) Operators of aircraft that may transfer between CAT and non-CAT operations must ensure that all aircraft and component maintenance is released by an appropriately approved Part-145 organisation, or accept the need for assessment and re-certification as necessary by a Part-145 organisation before commercial operations are commenced.

8.2 Components (including engines and equipment) that have been overhauled or maintained in accordance with paragraph 9.1 or 9.2 will require assessment and release to service by an appropriately approved (i.e. Group B or C Rated) Part-145 organisation prior to the aircraft to which these components are fitted being used for the purposes of Commercial Air Transport.

9 MAINTENANCE OF COMPONENTS (INCLUDING ENGINES, PROPELLERS, APUS AND EQUIPMENT) – EXCLUDING COMMERCIAL AIR TRANSPORT AND LARGE AIRCRAFT – EASA AIRCRAFT

NOTE: 'Large Aircraft' means an aircraft classified as an aeroplane with a maximum take-off mass of more than 5700 kg or a multi-engined helicopter.

9.1 Components (including engines and equipment) that are intended for fitment to aircraft not used for the purpose of Commercial Air Transport may continue to be released to service by organisations approved by the CAA for the purpose under BCARs or by appropriately licensed aircraft maintenance engineers.

9.2 New components that are intended for fitment to UK registered aircraft not used for the purpose of Commercial Air Transport may continue to be released to service by organisations outside of the UK, (including the United States of America and Canada), provided that they are:

the manufacturer of that component or aircraft, or

under the control of the aircraft or engine or propeller Type Certificate holder or are authorised by the Type Certificate holder's National Aviation Authority for the particular purpose, at the time that the component was released to service.

9.3 Components (including engines and equipment) that are intended for fitment to aircraft not used for Commercial Air Transport may be released to service by an organisation approved in accordance with Part-145 for that aircraft or component.

9.4 When components are fitted to an aircraft with a Certificate of Airworthiness not used for Commercial Air Transport, and in accordance with paragraphs 9.1 or 9.2 above, the required records, (e.g. aircraft, engine log books) must be endorsed with the following:

'This component has not been maintained in accordance with Part-145 and as such, may not be fitted to an aircraft used for the purposes of Commercial Air Transport until/unless released to service by an appropriately approved Part-145 organisation.'

9.5 Prior to 28 September 2008 where it is intended to fit used components which have been maintained in a state other than the United Kingdom to an aircraft, in accordance with this Airworthiness Notice, the component shall be accompanied by an appropriate release certificate from the state of export following maintenance in that state and prior to fitting to the UK registered aircraft. For Class 1 components (engines and propellers) an export statement is required (e.g. from the USA, a Form 8130-4 for Class 1 components and Form 8130-3 for all other used components).

After 28 September 2008 all used components fitted to UK-registered aircraft must be in compliance with Part M Subpart H, M.A.802.

10 MAINTENANCE OF COMPONENTS (INCLUDING ENGINES, PROPELLERS, APUS AND EQUIPMENT) - NON-EASA AIRCRAFT

10.1 Components (including engines, propellers, APUs and equipment) that are intended for fitment to non-EASA aircraft as defined in EC Regulation 1592/2002 Articles 1(2) and 4(2) (the current list may be found in CAP 747 Mandatory Requirements for Airworthiness, Section 1, Part 2) may be released to service by an organisation approved in accordance with Part-145 and holding the rating for that aircraft or component.

10.2 When components are released to service using an EASA Form 1, Box 13 must be endorsed by the following comment: **"This component is not eligible for fitment to an EASA aircraft"**.

11 BILATERAL AVIATION SAFETY AGREEMENT (BASAs)

Previous agreements between JAA States and other (non-JAA) States remain valid until replaced by EU bilateral arrangements. This allows the acceptance of used components from EASA Part-145 approved maintenance organisations in the USA and Canada (these were previously JAA accepted organisations).

- 12** **CHARGES** Full details of the charges associated with CAA approval are prescribed in the Official Record Series 5, which is available on the CAA web site at www.caa.co.uk, under the heading of Publications.
- 13** **APPLICATION** Enquiries regarding the grant of a Part-145 approval or a CAA Maintenance Approval to National requirements should be made in writing to the Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex RH6 0YR, marked for the attention of the Applications and Approvals Department. Further information will then be supplied, including an application form.
- 14** **CANCELLATION** This Notice cancels Airworthiness Notice No. 14 Issue 16, dated 29 March 2006, which should be destroyed.

AIRWORTHINESS NOTICE No. 14**Appendix 4***Issue 1**29 March 2006***Subcontracting to Non-Approved Organisations****1 GENERAL**

- 1.1 The UK CAA previously had accepted by the JAA the following Equivalent Safety Case in accordance with JAR 145.95.
- 1.2 Approved Certificates issued by BCAR approved Organisations for Specialised Maintenance Services, i.e. BCAR A8-5, together with the procedures listed in paragraph 3 were an acceptable means of compliance with Part-145.A.75 (b).
- 1.3 The UK CAA has from the 28 September 2005 cancelled the approval of those organisations approved in accordance with BCAR in the following categories: A8-1, A8-2, A8-4, A8-5, A8-6, A8-7, A8-9, A8-16 and A8-19, unless involved with the design or manufacture of non-EASA aircraft.

NOTE: Non-EASA aircraft are those aircraft not included as an EASA aircraft for the following reasons:

- a) identified within Annex II of EC Regulation 1592/2002;
- b) excluded by Article 1, paragraph 2 of EC Regulation 1592/2002;
- c) currently excluded by Article 2, paragraph 3 (c) of EC Regulation 1702/2003.

As approvals A8-5 and A8-6 have a considerable impact on aircraft maintenance and continuing airworthiness, paragraphs 2 and 3 of this appendix are raised to provide guidance on the subcontracting of these activities.

- 1.4 In order to issue a Part-145.A.50 Certificate of Release to Service of an aircraft component used in Commercial Air Transport, an organisation must meet one of the following criteria:
- (a) an organisation is approved in accordance with Part-145;
 - (b) an organisation is contracted to another appropriately approved Part-145 organisation;
or
 - (c) an organisation is working under the quality system of an appropriately approved Part-145 organisation (AMC 145.A.75 (b)) - this arrangement is known as "subcontracting".

2 INTRODUCTION

- 2.1 Part-145.A.75 (b) permits an organisation that is **not** appropriately approved in accordance with Part-145 to carry out certain maintenance tasks whilst working under the quality system of an approved Part-145 organisation - this is commonly referred to as subcontracting.
- 2.2 Part-145 organisations frequently need to subcontract certain specialised maintenance tasks such as: plating, heat treatment, plasma spray, fire testing, etc. without the need for the subcontractor to be directly approved in accordance with Part-145.
- 2.3 The UK CAA will accept a United Kingdom Accreditation Service accredited laboratory certificate where applicable for specialised maintenance tasks such as: heat treatment, fire testing, etc.
- 2.4 When maintenance is carried out under a subcontract control system it means that for the duration of such maintenance the Part-145 approval has been temporarily extended to include the subcontractor and requires the quality audit staff to ensure the Part-145 requirements are satisfied.
- 2.5 The Part-145 approved organisation should have the necessary competence, expertise and procedures to allow it to determine that the subcontractor is able to comply with the particular process/standard identified in the contract.

2.6 The contract between the Part-145 approved organisation and the unapproved subcontractor should contain a provision for the competent authority and EASA standardisation team staff to have right of access to the subcontractor.

3 PROCEDURE FOR ACCEPTANCE OF WORK FROM NON-APPROVED ORGANISATIONS

3.1 When subcontracting work to a non-approved organisation, the Part-145 organisation's procedures must make the following provisions:

- (a) the pre-audit procedure should ensure that the subcontracted company has a valid national accreditation where applicable, acceptable to the CAA (i.e. United Kingdom Accreditation Service);
- (b) the Part-145 approved organisation should ensure the subcontractor providing the specialised service is listed in their Maintenance Organisation Exposition;
- (c) subcontracted process work acceptance should be fully described in the Part-145 approved organisation's procedures including the acceptance of the format for the release of the contracted work;
- (d) the subcontract control procedure will need to ensure the national accreditation, where applicable, remains valid and appropriate for the contract required;
- (e) the Part-145 quality audit staff will need to audit their subcontract control section and sample audit the subcontractors when appropriate, as part of the quality programme;
- (f) the depth of the audit should be reflected in the accreditation, if any, held by the unapproved organisation;
- (g) the subcontracted control procedure will need to ensure the UKAS or applicable approval remains valid and appropriate for the contract required;
- (h) the Certificate of Release to Service/EASA Form 1 for the release of the task or process will always be issued under the Part-145 approved maintenance organisation approval reference;
- (i) the Certificate of Release to Service may be issued either at the subcontractor or at the organisation facility, by staff issued with a certification authorisation in accordance with 145.A.30 as appropriate, by the organisation approved under Part-145; and
- (j) such staff would normally come from the organisation approved under Part-145 but may otherwise be a person from the subcontractor who meets the approved maintenance organisation certifying standard, which is itself approved by the competent authority via the maintenance exposition.

3.2 When listing a non-approved organisation as a subcontractor the appropriate national accreditation status must be identified.

AIRWORTHINESS NOTICE No. 14**Appendix 5***Issue 1**29 September 2006***Acceptable Data for use by Part 145 Organisations****1 GENERAL**

- 1.1 The UK CAA frequently receives questions from maintenance organisations asking what data is approved and acceptable for Part 145 organisations to use when implementing repairs. There seems to be a lack of definition in the current regulations as to what exactly is required, in terms of data, paperwork and approval status, especially for repair data coming from outside the EU. In order to assist, we have put guidance material together for UK industry that we hope will provide some clarity on this issue.

2 INTRODUCTION

- 2.1 Currently EASA will accept the design approval of repair data in one of the following ways:
- (a) By being accepted by any EU member state prior to 28 September 2003;
 - (b) Under Part 21 Subpart M;
 - (c) Under a Decision issued by EASA.
- 2.2 Repair approval under (a) and (b) are believed to be well understood, but there may remain some confusion over (c). In December 2004, EASA issued several Decisions (2004/02/CF, 2004/03/CF, 2004/04/CF) http://www.easa.eu.int/home/agendecs_en.html that allow for the acceptance of repair designs for products where the USA, Canada or Brazil is the State of Design. This acceptance was based upon the repairs being approved under those national systems. How those systems work and what is and what is not acceptable under those systems may not be clear to the majority of maintenance organisations who may wish to make use of these Decisions.

3 ACCEPTABLE DATA

- 3.1 In order to prevent Maintenance Organisations either using data that is not approved under those systems or demanding more than is required, it is recommended that organisations take the following actions:
- (a) For the acceptance of minor repair data from an organisation under the oversight of the National Aviation Authorities of USA, Canada and Brazil, it is recommended that maintenance organisations obtain confirmation that:
 - the repair design is provided by persons suitably regulated under the National Authority's system (see Note for examples for the USA's system);
 - the repair has clearly been classified as minor or non-major;
 - the repair has been developed from data acceptable to the National Aviation Authority.
 - (b) For the acceptance of major repair data from an organisation under the oversight of the National Aviation Authority of USA, Canada and Brazil, maintenance organisations should ensure that the repair has received the approval of the National Authority (USA, Canada, Brazil) in whatever form is accepted in that state (e.g. FAA form 8110-3 for the USA, Repair Design Certificate in Canada). It should be noted that EASA Decisions 2004/02/CF, 2004/03/CF and 2004/04/CF restrict immediate EASA approval of major repairs (i.e. without further validation) to those issued by the TC holder and in some cases the STC holder.

For repair data coming from countries other than the EU, USA, Canada or Brazil, Part 21 GM 21A.431(a) provides a flow chart for repairs coming from outside the EU. Effectively

the repair can only be approved by the Agency, or if classified minor, by an appropriately approved Part 21 DOA organisation.

NOTE: Those eligible to generate repair data under the FAA system (i.e. acceptable source for minor repair data):

- (a) Delegation Option Authorization (DOA). A manufacturer holding a current type certificate and production certificate issued under standard procedures that is authorised by the FAA to conduct type, production, and airworthiness certification functions in accordance with 14 CFR part 21, subpart J.
- (b) Designated Alteration Station (DAS). A repair station, air carrier, or manufacturer authorised by the FAA to issue Supplemental Type Certificates in accordance with 14 CFR part 21, subpart M.
- (c) SFAR 36. A repair station, air carrier, or commercial operator authorised to develop and use major repair data that are not specifically approved by the FAA Administrator in accordance with SFAR 36. (SFAR 36 is found in the regulations at the beginning of 14 CFR part 121.)
- (d) Designated Engineering Representative (DER). DERs have various approval types, and can either work independently or as part of a larger design organisation.
- (e) Type Certificate Holder. This would include US manufacturers such as Boeing, Cessna etc. if not covered under a DOA.
- (f) US Operators. This is not seen as a common option for obtaining minor repair data within Europe. Within the FAA system some US operators, if they have been appropriately approved, are granted the authority to classify and design minor repair data. The approval status of the operator would need to be established prior to acceptance and implementation of the repair design.

AIRWORTHINESS NOTICE

No. 16
Issue 14
29 September 2006

The Process for Acceptance of Used Engines, Engine Modules, Auxiliary Power Units (APUs) and Propellers for Use on NON-EASA Aircraft Requiring a UK Certificate of Airworthiness**1 INTRODUCTION**

- 1.1 For the purposes of this Notice engines, engine modules, APUs, and propellers are hereafter referred to as Powerplants.
- 1.2 Article 10 of the Air Navigation Order 2005 states that a Certificate of Airworthiness shall cease to be in force if the aircraft is overhauled, repaired or modified otherwise than in a manner and with material of a type approved by the CAA.
- Similarly, for non Commercial Air Transport, Article 16(10) (a) requires that a Certificate of Release to Service (CRS) be issued when an aircraft has been overhauled, repaired, modified or maintained in a manner and with material of a type approved by the CAA.
- 1.3 For aircraft which are subject to regulation by EASA under Regulation (EC) 1592/2002, Part M Subpart E, M.A.501 and associated AMC/GM material detail how components, including Powerplants, from non-EASA approved sources are to be assessed. Those requirements must be followed for acceptance of such Powerplants for these aircraft and this Notice is not applicable.
- 1.4 For Powerplants to be used on aircraft that are not subject to regulation by EASA and are obtained from sources not under the direct airworthiness control of the CAA, this Notice defines a procedure which owners/operators must follow in order to meet the requirements of Article 10 or Article 16(10) of the Air Navigation Order 2005 (as amended). The procedure described below is only applicable to Powerplants for "non-EASA" aircraft as defined in CAP 747 Mandatory Requirements for Airworthiness.
- 1.5 Instructions are also included regarding both pool and lease/loan/power-by-the-hour arrangements and the alignment of maintenance programmes to be used on "non-EASA" aircraft.

2 GENERAL REQUIREMENTS

It must be established by the owner's/operator's approved maintenance organisation or an appropriately type rated Licensed Aircraft Engineer, as appropriate, that:

- (a) the Powerplant is of a type approved by the CAA.
- (b) civil identification plates are fitted.
- (c) log books or their equivalent, as appropriate, are issued.
- (d) original or certified true copies of any relevant documents (e.g. confirming modification standard, test results, etc.) arising from construction or previous Hot Section Inspection (H.S.I.)/Refurbishment/Overhaul/Performance Restoration are provided with the CRS.
- (e) the Powerplant is in compliance with all applicable Airworthiness Directives of the State of Design and the CAA.

NOTE: In the case of a Pool Powerplant only the Airworthiness Directives of the State of Design are required as a minimum (see paragraph 8).

- (f) any period of storage has been in accordance with the manufacturer's recommendations and that the Powerplant has not become unserviceable due to operational abuse, damage or the removal of components.
- (g) the hours and cycles accrued of any life limited parts are clearly defined.
- (h) all modifications and repairs embodied in the Powerplant have been approved by the Type Certifying Authority of the Powerplant or the CAA.

3 ALIGNMENT OF MAINTENANCE PROGRAMMES

Powerplant types which in the UK operator's maintenance programme are subject to fixed H.S.I./Refurbishment/Overhaul/Performance Restoration intervals must have the time remaining to these intervals agreed by the CAA when the previous operator's maintenance programme does not specify the same shop visit requirements or intervals.

4 POWERPLANTS WITH AN EASA, JAA, FAA OR TRANSPORT CANADA AUTHORISED RELEASE DOCUMENT

4.1 Powerplants which meet the requirements of Paragraph 2 of this Notice and have not been operated since the last H.S.I./Refurbishment/Overhaul/Performance Restoration are acceptable for use if received with an Authorised Release Document as defined in (a), (b), (c) or (d):

- (a) an EASA form 1
- (b) a JAA Form 1 issued by a JAR-145 Maintenance Organisation listed in the JAA publication 'JAR-145 Listed Organisations'.
- (c) an FAA Form 8130-3 from an EASA approved FAR-145 Repair Station listed in EASA Foreign Part 145 organisations located in the United States.
- (d) a Transport Canada Form 24-0078 from an EASA approved Transport Canada Approved AM573 Maintenance Organisation listed in EASA Foreign Part 145 organisations located in Canada.

4.2 If the Powerplant satisfies all of the requirements of paragraphs 2 and 4.1 of this Notice, then the following statement, signed by the person issuing the CRS, must be entered into the appropriate log book:

'Part..... S/N..... has been accepted under procedures complying with Airworthiness Notice No. 16, paragraphs 2 and 4.'

5 POWERPLANTS OPERATED UNDER THE AIRWORTHINESS CONTROL OF THE EASA, JAA, FAA OR TRANSPORT CANADA SINCE LAST H.S.I./REFURBISHMENT/OVERHAUL/PERFORMANCE RESTORATION

5.1 Powerplants which meet the requirements of paragraph 2 and the Authorised Release Document requirements of paragraph 4 of this Notice, but which have been operated since last H.S.I./Refurbishment/Overhaul/Performance Restoration, will be acceptable for use provided that:

- (a) a serviceability statement is obtained from the previous operator declaring any restrictions in hours or cycles relating to inspection, lubrication, replacement or overhaul as necessary to maintain the airworthiness of the Powerplant.
- (b) all defects have been rectified, or recorded,
- (c) the Powerplant has been maintained to an EASA, JAA, FAA or Transport Canada approved maintenance programme.

5.2 If the Powerplant satisfies all of the requirements in paragraphs 2 and 5.1 of this Notice, then the following statement, signed by the person issuing the CRS, must be entered into the appropriate log book:

'Part..... S/N..... has been accepted under procedures complying with Airworthiness Notice No. 16, paragraphs 2 and 5.'

6 POWERPLANTS FROM OTHER SOURCES OR THOSE REQUIRING FURTHER SUBSTANTIATION

6.1 This paragraph applies when any of the following circumstances exist:

- (a) it is not possible to satisfactorily confirm the origin, traceability or serviceability of the Powerplant.
- (b) the Powerplant is obtained without an EASA, JAA, FAA or Transport Canada Authorised Release Document (as described in paragraph 4 of this Notice).
- (c) the Powerplant has not been under the airworthiness control of EASA, JAA, FAA or Transport Canada operator since the last H.S.I./Refurbishment/Overhaul/Performance Restoration.
- (d) the Powerplant does not meet all of the requirements of Section 2.

NOTE: Owners and operators are advised to review the requirements of paragraphs 6.2 and 6.4 of this Notice prior to entering into a commercial agreement to purchase a Powerplant.

6.2 The owner's or operator's maintenance organisation or an appropriately type rated maintenance Licensed Aircraft Engineer, as appropriate, must demonstrate to the satisfaction of the CAA the Powerplant's acceptability, taking into account the following:

- (a) the details of any unapproved modifications and repairs which have been embodied in the Powerplant.
- (b) confirmation that military Powerplants which are similar to a civil equivalent have been modified to comply with civil requirements in conjunction with the manufacturer in each particular case, unless agreed otherwise with the CAA.
- (c) confirmation that the last H.S.I./Refurbishment/Overhaul/Performance Restoration was undertaken to a specification, and by an organisation or person, acceptable to the CAA.
- (d) a statement certifying serviceability (i.e. an Authorised Release Document or equivalent), issued by either the last H.S.I./Refurbishment/Overhaul/Performance Restoration organisation or the previous operator's maintenance organisation, as appropriate. This organisation must be appropriately authorised by its national airworthiness authority to make such a statement. Alternatively, a statement certifying serviceability issued by the appropriate national airworthiness authority may be acceptable.

6.3 If the CAA accepts the Powerplant, the following statement, signed by a CAA Surveyor, must be entered into the appropriate log book:

'Part..... S/N..... has been accepted by the CAA in accordance with Airworthiness Notice No. 16, paragraphs 2 and 6.2.'

6.4 If the serviceability cannot be adequately established then the Powerplant must be dismantled and inspected.

A suitably approved maintenance organisation or an appropriately type rated Licensed Aircraft Maintenance Engineer must dismantle and inspect the Powerplant. The manufacturer's recommendations must be used as the basis of the workscope for this activity, which must be sufficient to determine if either of the declarations below can be made. Rectification action must be taken where necessary.

If it cannot be established that the records are accurate and complete, all life limited parts must be scrapped. In addition, the applicant must make reference to the CAA for a decision on whether any other parts should be scrapped in the absence of satisfactory records.

6.5 If serviceability is established one of the following statements, signed by the maintenance organisation or the appropriately type rated Licensed Aircraft Maintenance Engineer, as applicable, must be entered into the appropriate log book, either:

'Part..... S/N..... has been examined in accordance with Airworthiness Notice No. 16 paragraph 6.4, and no evidence of operational abuse, inadequate maintenance or unsuitable storage has been revealed.'

or

'Part..... S/N..... has been examined in accordance with Airworthiness Notice No. 16 paragraph 6.4, and appropriate action has been taken to restore serviceability.'

7 LEASE/LOAN/POWER-BY-THE-HOUR POWERPLANTS

7.1 When a Powerplant is obtained on a long-term lease, loan or power-by-the-hour arrangement from a supplier who is either (a) the original manufacturer, or (b) an EASA, JAA, FAA or Transport Canada approved maintenance organisation or repair station defined in paragraph 4 of this Notice, then the operator must confirm that:

- (a) the Powerplant complies with the requirements of paragraph 2.
- (b) the supplier has issued a serviceability statement declaring any restrictions in hours or cycles relating to inspection, lubrication, replacement or overhaul as necessary to maintain the airworthiness of the Powerplant.
- (c) the Powerplant has been maintained to either the manufacturer's maintenance programme, or an EASA, JAA, FAA or Transport Canada approved maintenance programme.
- (d) all defects have been rectified or recorded.

7.2 The following statement, signed by the person issuing the CRS for the Powerplant, must be entered into the appropriate log book:

'Part..... S/N..... has been accepted under procedures complying with Airworthiness Notice No. 16, paragraph 7.'

8 POOL POWERPLANT

8.1 A 'Pool' Powerplant, interchanged between certain operators on a temporary basis (limited to a maximum of 200 hours), is permitted provided:

- (a) the conditions relating to airworthiness which apply to the pooling agreement are laid down in advance by the operator, agreed by CAA and lodged permanently in the operator's Maintenance Management Exposition. These conditions require consideration of not only the history of the Powerplant but also the acceptability of the source of the H.S.I./Refurbishment/Repair/Overhaul/Performance Restoration where this is other than by the pool partner.
- (b) the Powerplant is in compliance with all applicable Airworthiness Directives of the State of Design.
- (c) the UK operator obtains from the previous operator a signed statement certifying the Powerplant is airworthy when released on loan, declaring any restrictions in cycles or hours, etc., relating to inspection, lubrication, replacement, or overhaul as necessary to maintain the airworthiness of the Powerplant during the period of loan.

8.2 The following statement, signed by the person issuing the CRS for the Powerplant, must be entered into the appropriate log book:

'Part..... S/N..... has been accepted under procedures complying with Airworthiness Notice No. 16, paragraph 8.'

9 CANCELLATION

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This Notice cancels Airworthiness Notice No. 16, Issue 13, dated 21 March 2006, which should be destroyed.

AIRWORTHINESS NOTICE

No. 17
Issue 11
29 September 2006

The Acceptance of New Aircraft Components

- 1 **PURPOSE** The purpose of this Airworthiness Notice is to provide guidance on the acceptance of new aircraft components to persons issuing the Certificate of Release to Service for the installation of components, or for organisations sourcing such components, for incorporation into parts or assemblies for release under a production organisation approval, so that responsibilities under the applicable EC Regulations, the Air Navigation Order (ANO) and BCAR Section A, Chapter A8 may be satisfied in a manner acceptable to the CAA.

- 2 **APPLICABILITY** This Notice is applicable to aircraft which remain subject to national legislation as defined in Articles 1(2) and 4(2) of EC Regulation No. 1592/2002. This applies to new components intended for installation in aircraft, or for incorporation into assemblies produced under a UK national Production Organisation Approval in accordance with BCAR Section A, Chapter A8.
 - 2.1 Aircraft not defined as above are subject to EC Regulation No. 1702/2003, incorporating Part 21, and EC Regulation No. 2042/2003, incorporating Part-145. The European Aviation Safety Agency is therefore responsible for guidance regarding these aircraft (EASA aircraft). The information in this notice is, however, relevant to these aircraft and is intended as guidance for the UK aviation industry supplementing the information available from EASA (www.easa.europa.eu).
 - 2.2 A component received in accordance with this Notice should also have its eligibility for an individual aircraft established by the end user, considering applicable UK Mandatory Requirements for Airworthiness (CAP 747), Aircraft Technical Publications etc.

- 3 **DEFINITIONS** For the purpose of this Airworthiness Notice the following definitions apply:
 - (a) **Aircraft Component** means any new part of an aircraft including a complete powerplant and any operational or emergency equipment.
 - (b) **Standard Parts** A part is considered as a standard part where it is designated as such by the design approval holder (DAH) responsible for the product, part or appliance in which the part is intended to be used.

In order to be considered a standard part, all design, manufacturing, inspection data and marking requirements necessary to demonstrate conformance of that part must be in the public domain and published as part of a national or international specification.

NOTE: Parts which are the subject of specific product or equipment approvals such as National Equipment Approvals, grandfathered in accordance with the provisions of paragraph 13 of Article 2 of EC Regulation No. 1702/2003, Technical Standard Orders (TSO), Joint Technical Standard Orders (JTSO) or European Technical Standard Orders (ETSO) are not considered as standard parts.

When designating a standard part, the DAH should ensure that the effect on the design of any manufacturing tolerances within the specification are fully taken into account in the intended application. If it is found necessary to apply additional qualification or selection criteria over and above the published specification in order to

satisfy the intended design requirements (such as enhanced levels of inspection, burn-in, or environmental tests etc.) then the DAH should allocate its own part number reference and such parts cannot be considered as standard parts.

- (c) **Critical** means a part for which the failure analysis shows that hazardous effects, or worse, are not to occur at a rate in excess of extremely remote. This can also include parts for which a replacement time, inspection interval, or related procedure is specified in the Airworthiness Limitations section of the manufacturer's maintenance manual or Instructions for Continued Airworthiness.

4 AUTHORISED RELEASE DOCUMENT This document is required for any aircraft component which is to be installed in an aircraft, except that it is not required for standard parts as defined in paragraph 3(b).

4.1 When received from a manufacturing source approved to Part-21, the Authorised Release Document will be an EASA Form 1 issued under the terms of that Approval (for verification refer to www.easa.europa.eu/doc/Certification/Org_Appro/easa_apo.pdf). Prior to 28 September 2004 the Authorised Release Document used by an organisation holding an appropriate JAR-21 Subpart G approval was a JAA Form 1, after 28 September 2004 these organisations should have transitioned to Part 21 and now be using the EASA Form 1.

4.2 Prior to 28th September 2005 the Authorised Release Document used by an organisation holding an appropriate CAA BCAR A8-1 or A8-2 Approval or approved to national rules by an EU member state or Norway or Switzerland, would have been a JAA Form 1 issued under the terms of that Approval with the following statement in Block 13: "This certificate has been issued under(reference to the issuing NAA national rules applicable)".

4.3 Products, parts or appliances, for aircraft which remain subject to UK national legislation as defined in Articles 1(2) and 4(2) of EC Regulation 1592/2002 (non-EASA aircraft), may be released by an appropriately approved organisation on a UK CAA Approved Certificate. Airworthiness Notice 21 gives further guidance regarding the use of a UK CAA Approved Certificate.

4.4 When received from a manufacturing source appropriately Approved by the Federal Aviation Administration (FAA), which arranges for the release of the aircraft component, the Authorised Release Document will be either:

FAA Form 8130-4, Export Certificate of Airworthiness for new engines/propellers, or
FAA Form 8130-3, Authorised Release Certificate/Airworthiness Approval Tag for all other new components including APUs.

Further information regarding the use of FAA Form 8130-3 is contained in FAA Order 8130.21D. As a result of the Common Release Certificate project between the JAA, FAA and Transport Canada, it has been accepted that inclusion of the word "Export" is not necessary on each authority's respective forms. Inclusion of the word "Export" in Block 13 of a Form 8130-3 remains as an option to meet any existing bilateral agreement commitments.

Where a Form 8130-3 has been raised under previous revisions of the FAA Order then an export statement is still required. The current issue of the Form may be recognised by its revision - Form 8130-3 (6-01).

Form 8130-3 issued for Domestic purposes only within the US or certifying conformity to the Export requirements of a specific country other than the UK is not acceptable.

4.5 The CAA position regarding FAA-PMA parts is that a company can accept all non-critical PMA components and all PMA 'licence' components (i.e. with the permission of the Design Holder to make the part) using an appropriate FAA 8130-3 release and without further conditions being imposed. Other critical PMA components may be accepted with an appropriate Form 8130-3 release, providing that they are fitment to an aircraft, engine or propeller where the FAA is the authority of the State of Design, or with prior authorisation from the CAA, where the PMA component is manufactured with the permission of the TC/STC holder.

NOTE: 1 FAA Form 8130-3 Completion.

FAA PMA parts for U.S. products:

Where the FAA is the authority of the State of Design the statement "For fitment to a US Type Certificated product", should be written in Block 13 of FAA Form 8130-3.

FAA PMA parts for non U.S.products:

(a) PMA part is not a "critical component." (See definition, paragraph 3(c)). The statement "This PMA part is not a critical component" should be written in Block 13 of the FAA Form 8130-3. In case of doubt about the criticality of the component, the PMA holder should contact the UK CAA, through the FAA.

(b) If the PMA part conforms to design data obtained under a licensing agreement from the Type Certificate holder according to 14 CFR 21.303(c)(4). The statement "Produced under licensing agreement from the Type Certificate holder" should be written in Block 13 of FAA Form 8130-3.

NOTE: 2 Paragraph 4.5 reflects the current Implementation Procedures for design approval, production activities, export airworthiness approval, post design approval activities, and technical assistance between authorities Under the Agreement between The Government of the United States of America and The Government of the United Kingdom of Great Britain and Northern Ireland For Promotion of Aviation Safety (23rd May 2002). www.caa.co.uk/docs/50/SRG_dp_Final_Signed_IPA.pdf

4.6 The acceptance of components from outside the EU depends on arrangements being in place between EASA and the Airworthiness Authority of the exporting country. In addition to the information in this notice further detail of such arrangements may be found on the EASA website (<http://www.easa.europa.eu/home/index.html>) under the 'International Working Arrangements' section.

For aircraft which remain subject to national legislation, as defined Articles 1(2) and 4(2) of EC Regulation No. 1592/2002, contact aqas@srg.caa.co.uk for further information regarding components not covered by the paragraphs above.

5 DISTRIBUTORS Although aircraft component distributors provide a useful service to the aviation industry they are not required to be approved by the CAA, cannot raise Authorised Release Documents and cannot be required to possess the necessary technical expertise to establish the status of aircraft components. It therefore follows that for all components received, the end user should request from the distributor the associated Authorised Release Document raised by an appropriately approved organisation as described above.

Where a distributor does not want to pass the component's documents to a potential buyer, being another distributor, it is acceptable for the original distributor's documentation to be endorsed:

'Authorised Release Documentation of the aircraft component is on file, Ref. No. # # # # and will be made available to the end user upon request from that end user.'

Upon request of the end user the distributor should transmit the original documentation to allow the end user to establish the component's acceptability prior to installation. In all cases it is the responsibility of the end user to obtain the appropriate Authorised Release Documentation and establish the acceptability of the component.

NOTE: Where more than one component appears on the Authorised Release Document and the components are to be distributed separately a certified true copy of the Authorised Release Document is acceptable for transmittal to the end user. It should be made clear which entries on the copy of the Authorised Release Document relate to the supplied components.

6 CANCELLATION

This Notice cancels Airworthiness Notice No. 17, Issue 10, dated 29 March 2006 which should be destroyed.

AIRWORTHINESS NOTICE**No. 18
Issue 8
25 October 2002****Acceptance Standards for Imported Aircraft for which a UK Certificate of Airworthiness is Sought****1 INTRODUCTION**

This Airworthiness Notice has been revised to advise of the implementation of changes that have been made to the requirements for BCAR A8-8, Group E3 Approvals.

2 REQUIREMENTS

- 2.1 BCAR Sections A and B, Sub-sections A3-2 and B3-2, specify the requirements for the issue of Certificates of Airworthiness. These sub-sections have been revised for aircraft with a maximum take off weight above 15 000 kg to require a report to be submitted by an appropriate design organisation, certifying that the airworthiness standard of the aircraft conforms to, or differs in a defined manner from, a standard approved by the CAA for the issue of a Certificate of Airworthiness for that type. For the purposes of this Notice, an appropriate design organisation is an organisation approved in accordance with BCAR A8-8 Group E3 or it may be the Type Certificate holder if considered acceptable.

NOTE: In the case where the issue of a Certificate of Airworthiness is to be completed outside the United Kingdom at a place where an Organisation is not specifically approved to provide reports for the purpose, the overseas Organisation shall be one that is acceptable to the CAA.

- 2.2 For other aircraft with a maximum take off weight below 15 000 kg, a suitably approved maintenance organisation, or, subject to CAA agreement, appropriately licensed aircraft maintenance engineers for aircraft types not listed in paragraph 14 of Airworthiness Notice No. 10 may be used. However, the use of the services of an E3 approved organisation is recommended, particularly where the work to establish compliance is significant.
- 2.3 BCAR Section A, Sub-section A8 details the various organisation approvals. The requirements for design organisation approvals under Sub-section A8-8 have been amended to enable an E3 Design Organisation to provide reports and to certify that a particular aircraft conforms to, or differs in a defined manner from, a standard approved by the CAA for the issue of a Certificate of Airworthiness for that aircraft type. Previously the E3 approval was limited to the provision of reports and certification of compliance with design standards only. The amendment addresses all of the airworthiness standards associated with issue of a Certificate of Airworthiness and applicable operational requirements. Consequently an E3 Design Organisation will now be required to have suitable procedures and arrangements for the inspection of aircraft to establish compliance with the documented airworthiness standard.
- 2.4 The revised BCAR Chapter A8-8 requirement contains an appendix that gives guidance on the format and content of the report to be provided by the E3 Design Organisation.

3 IMPLEMENTATION

In order to phase in the implementation of the new E3 approval, reports from organisations whose E3 approval is currently limited to establishing design standards will continue to be accepted until one year after the date of the publication of amended requirements. After this date the CAA will not accept reports to certify the airworthiness standard for aircraft

with a certificated maximum take-off weight above 15 000 kg, other than in accordance with the amended BCAR Chapter A8-8 requirement.

- 4** **CANCELLATION** This Notice cancels Airworthiness Notice No. 18, Issue 7, dated 7 November 1997, which should be destroyed.

Changes Affecting Design and Production Organisations**1 PURPOSE**

- 1.1 To provide information to Design and Production Organisations regarding changes caused by the European Regulations that came into force on 28 September 2003, particularly:
- requirements for organisation approvals for design and production activities not subject to European Regulation (EC) No. 1592/2002; and
 - flight-testing required by Part 21.

2 APPLICABILITY

- 2.1 Design and Production Organisations.
- 2.2 Organisations required to conduct flight tests required by Part 21.

3 INTRODUCTION

- 3.1 The European Aviation Safety Agency (EASA) as established in European Regulation (EC) No. 1592/2002 commenced operation on 28 September 2003 and at the same time European Commission Regulation (EC) No. 1702/2003, laying down implementing rules for the airworthiness and certification of aircraft, entered into force. These regulations and implementing rules have affected the organisation approval requirements for design and production organisations currently approved to BCAR Sub-Section A8.

NOTE: 1 For the purposes of this Airworthiness Notice, aircraft that are required to comply with Regulation (EC) No. 1592/2002 are specified as "EASA Aircraft".

NOTE: 2 For the purposes of this Airworthiness Notice, aircraft that are not required to comply with Regulation (EC) No. 1592/2002 are specified as "Non-EASA Aircraft".

NOTE: 3 Lists of EASA and Non-EASA aircraft can be found in CAP 747.

4 EFFECTIVITY

This Airworthiness Notice is effective from 28 September 2004.

5 REQUIREMENTS**5.1 Design - EASA aircraft**

All design changes, repair design and initial design associated with EASA aircraft must be in accordance with Part 21 and approved either by EASA or by an appropriately approved Part 21 Subpart J design organisation.

NOTE: Even if an aircraft is being used as a 'state aircraft' and is therefore not the responsibility of EASA, a design change to that aircraft could still be approved through the EASA system. If the design change is a series modification and applicable to aircraft covered by the TC it is not state specific and could be accepted as an EASA design change. Alternatively, the design change could be defined as aircraft specific which would make it applicable to the 'state aircraft' only and would allow it to be approved under the national system as below.

5.2 Design - Non-EASA aircraft

Design changes, repair design and initial design not eligible for approval under Part 21 are a national responsibility and are approved by the CAA, an appropriately approved BCAR

design organisation or a Part 21 approved design organisation with an appropriate supplement to their EASA approval issued by the CAA. A Part 21 DOA requiring the ability to perform design activity in accordance with the national system, rather than to Part 21, can apply to the CAA for this supplement.

Examples of design not eligible for approval under Part 21 are:

- (a) Annex II aircraft design changes or repair design; and
- (b) Modification of an aircraft with an EASA TC but used for state purposes (e.g. police) where the design change is not certifiable as an EASA design change. If a design change to a state aircraft can be approved through Part 21, as described above, it is advisable to do this as any design change or repair not approved under Part 21 precludes the issuance of an EASA Certificate of Airworthiness for the affected aircraft. If at a later date the aircraft is not used for state purposes all non-EASA design changes will need removal or approving under the EASA system before the EASA Certificate of Airworthiness could be granted.

5.3 **Production - EASA aircraft**

Production against EASA approved design data needs to be in accordance with Part 21 and may be released on an EASA Form 1 by a Subpart G approved production organisation (POA) or an organisation working in accordance with Subpart F. Release on a JAA Form One has not been appropriate in the UK since 28 September 2005.

5.4 **Production - Non-EASA aircraft**

If the design data has been approved under the CAA national system and not under the EASA system then release on an EASA Form 1 is not appropriate. An organisation with an appropriate BCAR approval or a Part 21 POA with an appropriate CAA supplement can release on a CAA Approved Certificate as described in Appendix 1 to this Notice. Release on a JAA Form One has not been appropriate in the UK since 28 September 2005.

5.5 **Information on the future requirements for organisation approvals for design and production activities on Non-EASA aircraft**

Organisations whose activity is only related to Non-EASA aircraft may continue to use their BCAR Section A8 approvals. The CAA intend to replace these national requirements with a set of common requirements based upon Part 21. These requirements are nominally called BCAR Chapter A8-21 and will be developed with industry support.

5.6 **Flight testing required by Part 21**

NOTE: 1 For EASA aircraft the CAA are responsible for making the findings associated with the issue of a Permit to Fly until 28 March 2007 in accordance with Regulation (EC) No. 1702/2003 Article 2, paragraph 11.

NOTE: 2 For Non-EASA aircraft the requirements of BCAR Chapter A3-8 (A Conditions) and Chapter A3-9 (B Conditions) are still applicable and an organisation approval in accordance with BCAR Chapter A8-9 is required as necessary.

5.6.1 **Application**

5.6.1.1 An EASA Permit to Fly is required for flight of an EASA aircraft where a Certificate of Airworthiness is not in force. An EASA Permit to Fly is issued for conducting flight tests in accordance with Part 21 paragraph 21A.35 where these tests are required for demonstrating compliance with the certification and environmental protection requirements required by 21A.20 (type certificate), 21A.97 (major changes to a type certificate) and 21A.117 (supplemental type certificate) and for conducting production flight tests in accordance with 21A.139(b)(1) and 21A.127.

5.6.1.2 General information regarding application for a Permit to Fly is available in Airworthiness Notice No. 9. An additional guidance document for flight testing in accordance with Part 21 is detailed in Appendix 2 of this Notice.

5.6.2 Procedure

5.6.2.1 Design Assurance System

Before an application for an EASA Permit to Fly is progressed by the CAA, the approved design organisation responsible for the control and management of the flight tests must demonstrate to the Agency that it complies with the applicable requirements of Part 21 Subpart J. The design assurance system required by 21A.239 shall include the control and management of the applicable flight tests.

As specified in Airworthiness Notice No. 9 a Flight Release Certificate is required to be issued prior to flight under the terms of the EASA Permit to Fly. When the EASA Permit to Fly is issued for flight test purposes the design organisation shall verify that all applicable procedures are satisfied prior to issue of the Flight Release Certificate.

The Flight Release Certificate required by Airworthiness Notice No.9 may in specific cases and where agreed with the CAA be in the form of a "Certificate of Clearance" as defined in BCAR A8-9. However it must be amended to include all the details of the Flight Release Certificate detailed in Airworthiness Notice No. 9, particularly the cross reference to the associated Permit to Fly and be renamed a "Flight Release Certificate".

The design organisation must demonstrate the availability of suitable and appropriately approved personnel, facilities and procedures for the control and management of the flight test. These procedures shall include the following elements:

(a) Design

The determination of whether flight-testing needs to be undertaken and:

- provision of information on the appropriate conditions and limitations;
- control of the aircraft build standard, configuration and conditions to be flight-tested;
- specification of any additional maintenance required;
- establishing procedures for the generation and approval of flight-test schedules;
- establishing procedures for the generation of flight-test reports.

(b) Flight

The conduct of safe flight operations and:

- ensuring that flights shall only be undertaken in accordance with the relevant procedures;
- maintaining the procedures for the conduct of flight tests.

These procedures will include particulars of facilities for the flight test function, selection of suitable airfields from which to conduct the flight test and consideration of the need for special equipment for the purposes of the safety of the trials, e.g. harnesses, parachute stowage's, emergency exits, anti-spin parachutes, instrumentation and the means for disconnecting automatic devices.

- assurance that the number and qualifications (including licences where applicable) of the minimum flight crew shall be subject to agreement between the Organisation and the CAA for each type or category of aircraft concerned.

NOTE: This arrangement will not prejudice the minimum flight crew finally specified in the Flight Manual.

(c) Airworthiness and Inspection

The assurance of compliance with the requisite build standard or modification state (embracing production, inspection and installation) and

- The completion of required maintenance of the aircraft.
- The certification that the aircraft is fit for flight.
- The notification to the pilot of any changes embodied on the aircraft.

(d) **Quality Management**

The procedure for control and management of flight testing shall ensure that a Flight Release Certificate is not issued until the Design Organisation has ensured that all applicable requirements and relevant procedures have been followed.

This process shall ensure that the procedures and forms issued address the following:

- organisation name and approval number;
- flight Release Certificate number and date of issue;
- type, serial number and registration of the aircraft;
- definition of the design standard of the aircraft;
- approval of flight test schedule(s);
- the maximum weight and centre-of-gravity limits;
- all pertinent operating limitations;
- the minimum crew;
- any other restrictions considered necessary;
- confirmation that the design standard and conditions stated on the certificate are adequate to conduct the necessary flight tests;
- confirmation that the build standard of the aircraft conforms to the design standard and that the aircraft is fit for flight;
- confirmation of compliance with applicable maintenance requirements including those modified by the design function in relation to the work being undertaken, including hours available to the next maintenance check;
- confirmation that the flight crew (and ground observers) understand and accept the test plan and limitations for the flight and that a pre-flight briefing has been carried out.

The independent quality system required by Part 21 Subpart J will by means of auditing ensure that the Organisation and its partners/sub-contractors operate in accordance with established procedures and remain in compliance with the applicable requirements.

NOTE: Where the organisation responsible for the control and management of the flight test has employed another suitably approved organisation to carry out one or more of the elements required, then the certifying signatory shall sign applicable documents under the approval of their own organisation and state the applicable approval reference. The design organisation shall specify the manner in which the design assurance system accounts for the acceptability of the tasks performed by partners or sub-contractors according to methods, which are the subject of written procedures in accordance with 21A.239(c). It is expected that the Design, Flight and Quality Management elements will be under the approval authority of the applicant.

5.6.2.2 **Design Organisation Handbook**

As required by Part 21A.243(a) the DOA handbook shall include the procedures and forms used. Note that AMC No.1 to 21A.243(a) requires that the names of nominated persons with specific responsibilities as mentioned in 21A.35 are listed in the handbook.

5.6.2.3 **Aircraft Registration**

Aircraft flying under an EASA Permit to Fly issued by the CAA shall be registered in the UK as required by Part 21 paragraph 21A.185.

An aircraft shall not fly unless it bears painted thereon or affixed thereto, in the manner required by the law of the country in which it is registered, the nationality and registration marks required by that law.

5.6.2.4 Maintenance of Aircraft

Any aircraft flying under an EASA Permit to Fly, in order to conduct flight testing, shall continue to be maintained in accordance with the maintenance schedule or programme approved for the aircraft. Where there is no approved maintenance schedule or programme the aircraft shall be maintained in an airworthy condition in accordance with a programme of maintenance prepared in accordance with appropriate procedures approved by the CAA. These procedures should include provisions for any additional maintenance, which may arise from development or modifications to the aircraft during the flight tests.

6 CANCELLATION

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This Notice cancels Airworthiness Notice No. 21, Issue 3, dated 28 September 2005, which should be destroyed.

AIRWORTHINESS NOTICE No. 21

Appendix 1

Issue 1

28 September 2005

1 United Kingdom Civil Aviation Authority		UK CAA APPROVED CERTIFICATE				3 Form Tracking Number	
4 Approved Organisation Name and Address					5 Work Order / Contract / Invoice		
6 Item	7 Description	8 Part No.	9 Eligibility*	10 Qty	11 Serial No / Batch No	12 Status/Work	
13 Remarks This certificate has been issued under national rule provisions							
14 Certifies that, unless otherwise specified in block 13, the items identified above were manufactured in conformity to: <input type="checkbox"/> approved design data and are in a condition for safe operation <input type="checkbox"/> non-approved design data specified in block 13			19 Certifies that unless otherwise specified in block 13 the work identified in block 12 and described in block 13 was accomplished in accordance with the airworthiness requirements of the UK and in respect to that work the items are considered ready for release to service				
15 Authorised Signature		16 Approval No.		20 Authorised Signature		21 Approval No.	
17 Name		18 Date (dd/mmm/yyyy)		22 Name		23 Date (dd/mmm/yyyy)	

* Installer must cross-check eligibility with applicable technical data

USER/INSTALLER RESPONSIBILITIES

NOTES: 1. It is important to understand that the existence of the document alone does not automatically constitute authority to install the part/component/assembly.

2. Where the user/installer works in accordance with the national regulations of another airworthiness authority it is essential that the user/installer ensure that his/her airworthiness authority accepts parts/components/assemblies from the UK CAA.

3. Statement 14 and 19 do not constitute installation certification. In all cases the aircraft maintenance record shall contain an installation certification issued in accordance with the national regulations by the user/installer before the aircraft may be flown.

APPROVED CERTIFICATE

COMPLETION INSTRUCTIONS

These instructions relate only to the use of the UK CAA Approved Certificate for manufacturing purposes.

1 PURPOSE AND SCOPE

The primary purpose of the certificate is to release products, parts and appliances (hereafter referred to as 'item(s)') as identified in Blocks 7 through 11 as applicable after manufacture, or to release maintenance work carried out on items under the approval of the CAA.

The Certificate serves as an official certificate for the delivery of items from the manufacturer to users. The Certificate is not, however, a delivery or shipping note.

It may only be issued by organisations certificated by the CAA, within the scope of such an approval. Aircraft are not to be released using the Certificate. Products, Parts or Appliances for aircraft that are the responsibility of the European Aviation Safety Agency (EASA) are NOT to be released using the Certificate.

A mixture of 'New' and 'Used' items is not permitted on the same Certificate.

A mixture of items certified in conformity with 'approved data' and to 'non-approved data' is not permitted on the same Certificate, and consequently only one box in Block 14 can be ticked.

2 GENERAL

The Certificate must comply with the format attached including block numbers and the location of each Block. The size of each Block may however be varied to suit the individual application, but not to the extent that would make the Certificate unrecognisable. The overall size of the Certificate may be significantly increased or decreased so long as the Certificate remains recognisable and legible. The Certificate must be in 'Portrait' rather than 'Landscape' to help differentiate it from the EASA Form 1. If in doubt consult the CAA.

Please note that the user responsibility statements can be placed on either the reverse or front of this Certificate.

All printing must be clear and legible to permit easy reading and be in English.

The Certificate may either be pre-printed or computer generated but in either case the printing of lines and characters must be clear and legible. Pre-printed wording is permitted in accordance with the attached model but no other certification statements are permitted.

The details entered onto the Certificate must be in English and permit easy reading, and may be entered by hand, using block letters, or by a machine or computer. Abbreviations must be restricted to a minimum.

The space remaining on the reverse side of the Certificate may be used by the originator for any additional information but must not include any certification statement.

The original Certificate must accompany the items and correlation must be established between the Certificate and the item(s). A copy of the Certificate must be retained by the organisation that manufactured the item. Where the Certificate format and the data is entirely computer generated, subject to acceptance by the CAA, it is permissible to retain the Certificate format and data on a secure database.

There is no restriction in the number of copies of the Certificate sent to the customer or retained by the originator.

The Certificate that accompanies the item may be attached to the item by being placed in an envelope for durability.

3 COMPLETION OF THE APPROVED CERTIFICATE BY THE ORIGINATOR

Except as otherwise stated, there must be an entry in all Blocks to make the document a valid certificate.

- Block 1 Pre-printed 'United Kingdom Civil Aviation Authority'.
- Block 2 Pre-printed 'UK CAA Approved Certificate'.
- Block 3 A unique number must be pre-printed in this Block for Certificate control and traceability purposes except that in the case of a computer generated document, the unique number need not be pre-printed where the computer is programmed to produce the number.
- Block 4 The information in this Block needs to satisfy two objectives:
- 1 to relate the Certificate to an organisation approval, for the purposes of verifying authenticity and authority of the Certificate;
 - 2 to provide a ready means of rapidly identifying the place of manufacture and release, to facilitate traceability and communication in the event of problems or queries.

Therefore, the name entered in the box is that of the organisation approval holder who is responsible for making the final determination of conformity or airworthiness, and whose Approval Reference Number is quoted in Block 16. The name must be entered in exactly the same form as appears in the Approval Certificate held by the organisation.

The address(es) entered in Block 4 will assist in the identification of the approval holder and in identifying the place of release.

If the place of manufacture and release is one of the organisation addresses listed on the Approval Certificate, then that is the only address needed in this Block.

If the place of manufacture and release is a location which is NOT listed in the Approval Certificate then two addresses are required. The first address will be the address of the approval holder (as listed in the Approval Certificate) and a second address entered to identify the place of manufacture and release.

This Block may be pre-printed. Logo of the production approval holder, etc., is permitted if it can be contained within the Block.

- Block 5 The purpose is to reference work order/contract/invoice or any other internal organisational process such that a fast traceability system can be established. The use of the Block for such traceability is mandatory in the absence of item Serial Numbers or batch numbers in Block 11. When not used, state N/A.
- Block 6 The Block is provided for the convenience of the organisation issuing the Certificate to permit easy cross-reference to the 'Remarks' Block 13 by the use of line item numbers. Block 6 must be completed where there is more than one line item.

Where a number of items are to be released on the Certificate, it is permissible to use a separate listing cross-referring Certificate and list to each other.

- Block 7 The name or description of the item must be given. Preference must be given to use of the Illustrated Parts Catalogue (IPC) designation.
- Block 8 State the Part Number. Preference must be given to use of the IPC number designation.
- Block 9 Used to indicate the type-approved applications for which the released items are eligible for installation, based on information provided by the design approval holder. The following entries are permitted:
- a) At least one specific or series aircraft, propeller, or engine model as identified by the design approval holder. In case of engine or propeller release, state the aircraft approved applications, or, if application is not specific, state 'type-certificated engine/propeller'.
 - b) 'None', to be used only when it is known that the items do not yet have a type-approved application, for example: pending type-certificate, for test only, pending approved data. If this category is used, then appropriate explanatory information must be provided in Block 13 and new items may only be released for Conformity purposes.
 - c) 'Various' if known to be eligible for installation on multiple products, according to a procedure approved by the CAA.

In the case of multiple applications it is acceptable for this Block to contain cross reference to an attached document which lists such applications.

Any information in Block 9 does not constitute authority to fit the item to a particular aircraft, engine or propeller. The User/Installer must confirm via documents such as the Parts Catalogue, Service Bulletins, etc., that the item is eligible for the particular installation.

Any information in Block 9 does not necessarily mean that the product, parts or appliances are only eligible for installation on the listed model(s). Nor does it guarantee that the product, parts or appliances are eligible for installation on all entries in Block 9. Eligibility may be affected by modification or configuration changes.

Where a part is identified by the design holder in accordance with officially recognised Standards, then the part is considered a Standard Part and release with an Approved Certificate is not necessary. However where a production approval holder releases a standard part with an Approved Certificate then it must be able to demonstrate that it is in control of the manufacture of that part.

- Block 10 State the quantity of items being released.
- Block 11 State the Serial Number (or Batch Number) of the item if applicable. If not applicable, state 'N/A'.
- Block 12 Enter one or a combination of appropriate standard words from the following table. The table lists, in quotes, the standard words permitted for use when releasing new items prior to entry into service, i.e. the items have not been previously used in operational service. It also details the circumstances and conditions under which they may be used. In all cases the certification rules relating to Block 14 apply, the appropriate box is to be marked, and Block 15 is to be signed.

Block 12
(cont)

TABLE OF STANDARD WORDS FOR NEW PARTS

1 'MANUFACTURED'

- a) The production of a new item in conformity with the applicable design data, or
- b) re-certification by the original manufacturer after rectification work on an item, previously released under paragraph 1(a), which has been found to be unserviceable prior to entry into service, e.g., defective, in need of inspection or test, or shelf life expired. Details of the original release and the rectification work are to be entered in Block 13, or re-certification of new items from conformity purpose to airworthiness purpose at the time of approval of the applicable design data, provided that the items conform to the approved design data. An explanation of the basis of release and details of the original release are to be entered in Block 13.

2 'INSPECTED'/'TESTED'

The examination of a previously released new item:

- a) to establish conformity with the applicable design data, or
- b) in accordance with a customer-specified standard or specification, details of which are to be entered in Block 13, or
- c) to establish serviceability and condition for safe operation prior to re-release as a spare, where the item has been obtained with an EASA Form 1 or Approved Certificate. An explanation of the basis of release and details of the original release are to be entered in Block 13.

3 'MODIFIED'

The alteration, by the original manufacturer, of a previously released item prior to entry into service. Details of the alteration and the original release are to be entered in Block 13.

The above statements must be supported by reference to the approved data/manual/specification. Such information shall be identified in either Block 12 or 13.

Block 13

It is necessary to state any information in this Block, either directly or by reference to supporting documentation, that identifies particular data or limitations relating to the item being released that are necessary for the User/Installer to make the final airworthiness determination of the item. The information must be clear, complete, and provided in a form and manner which is adequate for the purpose of making such a determination.

Each statement must be clearly identified as to which item it relates. If there is no statement, state 'None'.

Block 13
(cont)

Examples of conditions which would necessitate statements in Block 13 are:

- when the certificate is used for conformity purposes the following statement must be entered at the beginning of Block 13:
'ONLY FOR CONFORMITY, NOT ELIGIBLE FOR INSTALLATION ON IN-SERVICE TYPE-CERTIFICATED AIRCRAFT / ENGINE / PROPELLER';
- when the design data is not approved by the CAA, then the competent authority of the third country responsible for the approval of the design data must be identified and the following statement must be entered together with a reference identifying the approval:
'DESIGN DATA APPROVED BY <identify the responsible competent authority of a third country and the approval reference>';
- re-certification of new items from conformity purpose to airworthiness purpose at the time of approval of the applicable design data, provided that the items conform to the approved design data.

Provided that no change in design has occurred during the design data approval process, the manufacturer may state that the design data has been approved and that provided the specific component is still in the condition it was when it was shipped to the user/installer, the component is now eligible to be installed. The manufacturer must make this statement on a second Approved Certificate where in addition to any other necessary remarks, appropriate explanatory information must be provided. The following wording must be used: 'RE-CERTIFICATION OF NEW PARTS FROM CONFORMITY TO AIRWORTHINESS: THIS DOCUMENT ONLY CERTIFIES THE APPROVAL OF THE DESIGN DATA TO WHICH THIS ITEM WAS (THESE ITEMS WERE) MANUFACTURED, BUT DOES NOT COVER CONFORMITY/CONDITION AFTER RELEASE OF THE INITIAL APPROVED CERTIFICATE REF.....'

Approved Certificate (both for 'Conformity purposes' and for 'Airworthiness purposes') must be generated by the same organisation, i.e. the original manufacturer or prime manufacturer, whichever raised the original Approved Certificate for Conformity purposes.

- For complete engines and propellers the applicable type-certificate, or equivalent, must be referenced.
- For complete engines, a statement of compliance with the applicable emissions requirements current at the date of manufacture of the engine.
- Usage restriction for repaired items.
- Modification standard.
- Alternative approved items supplied.
- Concessions applicable.
- Non-compliance with certification specifications.
- Details of repair work carried out or reference to a document where this is stated.
- Compliance with, or non-compliance with Airworthiness Directives or Service Bulletins.
- Information on life limited items.

- Condition of items or reference to a document detailing this information.
 - Manufacturing date or cure date.
 - Shelf life data.
 - Shortages
 - Time Since New (TSN), Time Since Overhaul (TSO), etc.
 - Re-certification of previously released 'new' items.
- Block 14 This Block may only be used to indicate the status of new items. The main purpose of the Certificate is to release items for airworthiness purposes, which means conformity with approved design data and in condition for safe operation.
- This airworthiness certification is valid in the UK.
- The certificate may also be used as a Conformity Certificate when items conform to applicable design data which are not approved for a reason which is stated in Block 13 (e.g., pending type-certificate, for test only, pending approved data).
- In this case the following additional statement must be entered at the beginning of Block 13 itself and not in a separate document: 'ONLY FOR CONFORMITY, NOT ELIGIBLE FOR INSTALLATION ON IN-SERVICE TYPE-CERTIFICATED AIRCRAFT/ENGINE/PROPELLER'.
- Mixtures of items released for Airworthiness and for Conformity purposes are not permitted in the same certificate. Also refer to the notes for completion of Block 9.
- Block 15 The hand-written normal signature of a person who has written authority from an approved production organisation to make Certifications in respect of new items. Use of a stamp instead of a signature is not permitted, but the authorised person may add a stamp impression to his or her signature to aid recognition. Subject to the agreement of the CAA in any particular case, computer-generated signatures are permitted if it can be demonstrated that an equivalent level of control, traceability and accountability exists.
- Block 16 State the full authorisation reference given by the CAA to the organisation releasing the new items.
- Block 17 The name of the person signing Block 15, printed, typed, or written in a legible form.
- Block 18 The date on which Block 15 is signed, in the format day/month/year. The month must be stated in letters (sufficient letters must be used so there can be no ambiguity as to the month intended).
- Block 19 Not used and strike out for release of new items.
- Block 20 Not used and strike out for release of new items.
- Block 21 Not used and strike out for release of new items.
- Block 22 Not used and strike out for release of new items.
- Block 23 Not used and strike out for release of new items.

AIRWORTHINESS NOTICE No. 21

Appendix 2

Issue 3

29 September 2006

<p>APPLICATION FOR THE ISSUE OF AN EASA PERMIT TO FLY (IN ACCORDANCE WITH AIRWORTHINESS NOTICE NO. 9)</p> <p>This Form is to be used only for applications in accordance with Airworthiness Notice No. 9.</p> <p>Aircraft Registration: <i>G-XXXX</i> Aircraft Type: <i>Self Explanatory</i></p> <p>Serial No: <i>Self Explanatory</i> Aircraft Location: <i>Airfield from which flight test will take place</i></p>	
<p>(a) DETAILS OF APPLICANT</p> <p>Name:</p> <p>Address:</p> <p>.....</p> <p>Tel. No: Fax No:</p> <p>E-mail:</p>	
<p>(b) ADDRESS TO WHICH PERMIT TO BE SENT (if different from above)</p> <p>.....</p> <p>.....</p>	
<p>(c) DETAILS OF APPROVED ORGANISATION/PERSONS</p> <p>Name and work location address of the Licensed Aircraft Engineer(s), Part 145 Organisation, Part 21 Production Organisation or CAA Authorised Person that will be responsible for the issue of the Flight Release Certificate associated with this EASA Permit to Fly,</p> <p>and</p> <p>where applicable the Part 21 Design Organisation responsible for the management and control of flight testing.</p> <p>Name(s): Location(s):</p> <p><i>For a Permit to Fly for flight testing for showing compliance with applicable certification and environmental protection requirements state the name of the organisation responsible for the control and management of the flight test. (Usually a Part 21 DOA).</i></p> <p><i>The organisation's address and approval number must also be stated.</i></p>	
<p>(d) PURPOSE OF FLIGHT(s)</p> <p>Qualify for the Issue/Renewal/Re-Validation of an EASA airworthiness certificate. <input type="checkbox"/></p> <p>Proceed to or from a place for maintenance/test/weighing/painting to be performed. <input type="checkbox"/></p> <p>Proceed to or from a place of storage. <input type="checkbox"/></p> <p>Flight testing for showing compliance with applicable certification and environmental protection requirements (including approval of modifications). <input checked="" type="checkbox"/></p> <p>Other. (Specify on separate attached report) <input type="checkbox"/></p>	
<p>(e) DESCRIPTION OF FLIGHT(s)</p> <p>From: <i>Self Explanatory</i> To: <i>Self Explanatory</i></p> <p>Via: <i>Self Explanatory</i> *Date of intended Flight: <i>Self Explanatory</i></p> <p>(If a series of flights are to be carried out under an approved 'Flight Test Programme', specify on separate attached report.)</p> <p><small>* Issue date of Permit</small></p>	
<p>SRG 1701 (29092006)</p>	<p>Page 1 of 2</p>

(f) CREW COMPOSITION

Specify number(s) of crew to be carried whilst operating on the EASA Permit to Fly:

Pilots:**State Names**..... Flight Engineer:**State Names**.....

Flight Observer:**State Names**..... Other (Please specify):**State Names**.....

Note: Only minimum crew shall be carried on an aircraft operating on an EASA Permit to Fly

(g) COMPLIANCE WITH MAINTENANCE AND AIRWORTHINESS REQUIREMENTS

The aircraft complies with all applicable type certification, maintenance and airworthiness requirements:
For a Permit to Fly for flight testing for showing compliance with applicable certification and environmental protection requirements, the answer to this question is always 'No'.

***YES** ***NO**

*(Delete as appropriate)

If the answer is 'No' complete section (h)

(h) NON-COMPLIANCE WITH TYPE CERTIFICATION, MAINTENANCE & AIRWORTHINESS REQUIREMENTS

The aircraft is not in compliance with the type certification, maintenance and/or airworthiness requirements specified below:

State modification number (or other reason) that if installed on the aircraft will render the Certificate of Airworthiness invalid. The title or summary of the modification should also be stated.

State the flight test schedule reference and submit a copy to the CAA with this application if not previously submitted.

State the DOA handbook reference and issue detailing the procedures to be followed.

Note: Any non-compliance with the Maintenance Programme, Airworthiness Directives, Airworthiness Life Limitations or non-compliance with the Type Certification Standard must be declared, including details of any damage. Non-compliance with type certification, airworthiness or maintenance requirements may require technical (engineering) support from the type certificate holder or other appropriate Part 21 Subpart J design organisation.

(i) MAINTENANCE AND AIRWORTHINESS INSPECTIONS

Specify any particular maintenance inspections that will be accomplished in order to establish the airworthiness standard for the intended flight(s) on the Permit to Fly. *(Attach additional report if required)*

State any supplementary maintenance schedules or inspections required for the flight test or during the flight test programme.

State the names and approval reference of the Part 21 POA and/or Part 145 maintenance organisations responsible for:

Certification of the build standard and ensuring the aircraft is fit for flight;

The completion of any required maintenance;

The notification to the pilot of any changes embodied on the aircraft;

Production of any parts installed as part of the modification.

(j) APPLICABLE FEE ENCLOSED

YES / NO

(k) DECLARATION

I hereby confirm that with respect to this application I am acting on behalf of the registered Owner/ Operator of the aircraft. As an appropriately type rated **Licensed Aircraft Engineer/*Part 145 Authorised Person/*Part 21 Design Authorised Person/ *CAA Authorised-Approved Person*, I will ensure that prior to any flight a valid Flight Release Certificate is in force, issued in accordance with Airworthiness Notice No. 9 and that the aircraft will be in an appropriate airworthy condition to perform the intended flight(s).

Name:Signature:

This is the person responsible for the control and management of the flight test and therefore for verifying that all applicable procedures are satisfied prior to the issue of the Flight Release Certificate.

Licence/Authorisation No: ***N/A where this is under the DOA***..... Date:

Organisation Name:***As per box 'c'***..... Organisation Approval No.***As per box 'c'***.....

*Delete as appropriate

CAA USE ONLY

Permit to Fly No: Date of Issue:

A/W Surveyor Name: Aircraft/Records Survey Performed **Yes / No**

AD 225 Completed and sent to A&A Department Date:

AIRWORTHINESS NOTICE

No. 22
Issue 12
29 September 2006

Overseas Aviation Authorities

1 SUPPLY OF UK CAA PUBLICATIONS TO OVERSEAS AVIATION AUTHORITIES

1.1 The CAA no longer supplies free of charge paper copies of the following CAA publications. They are available to download free of charge via our website at www.caa.co.uk/publications:

- British Civil Airworthiness Requirements (BCARs)
- Civil Aviation Publications (CAPs)

NOTE: Type Certificate Data Sheets can now be located at www.caa.co.uk/srg/airworthiness/certification.

1.2 A new Civil Aviation Publication, CAP 747 – Mandatory Requirements for Airworthiness, has been published to provide a single point of reference for mandatory airworthiness information and airworthiness directives for civil aircraft registered in the UK. The compilation of this CAP 747 at Issue 2 allowed a rationalisation of other CAA publications as follows:

- (a) CAP 476 - Mandatory Aircraft Modifications And Inspections Summary will no longer be amended because UK State of Design mandatory requirements compiled after 28th September 2003 are published as EASA Airworthiness Directives, or as UK requirements for non-EASA aircraft within Section 3, Part 3 of CAP 747. CAP 476 will be frozen at the October 2004 publication date. It will continue to be available as a reference document on the CAA web site for requirements published prior to September 2004.
- (b) CAP 473 - CAA Additional Airworthiness Directives has been cancelled.
- (c) CAP 474 - Foreign Airworthiness Directives Volume III has been withdrawn.
- (d) CAP 480 UK Additional Requirements for Import has been cancelled.

2 **CANCELLATION** This Notice cancels Airworthiness Notice No. 22, issue 11, dated 21 March 2005, which should be destroyed.



No. 23
Issue 1
20 January 1986

Fuel Additives – Health Hazards

- 1** Fuel anti-icing additive is used in a wide range of the smaller jet-engined fixed wing aircraft and also in helicopters. The additive contains Ethylene Glycol Monomethyl Ether, which is an extremely toxic substance when inhaled or absorbed through the skin. The usual method of dispensing the additive into the fuel when gravity re-fuelling, is by means of portable aerosol type containers. The most widely used of these comes under the trade name of 'Prist'.
- 2** Whenever using these containers of anti-icing additive, great care must be taken to avoid inhalation or splashing of the additive on to the skin. A long-sleeved garment should be worn to cover the arms, gloves should be worn and goggles used for eye protection. Any clothing contaminated by accidental splashing should be promptly removed and the skin washed with soap and water. If anti-icing additive inadvertently enters the eyes, they should be flushed with water and a doctor should be consulted.
- 3** Dispensers are available for underwing pressure re-fuelling systems and when using this method the personnel carrying out the re-fuelling should still wear gloves to prevent contamination by any small spillage from the re-fuelling couplings.
- 4** Further information on the general handling and storage of Prist or other anti-icing additive can be obtained from the appropriate fuel company.
- 5** The information and recommendations of this Notice are intended to prevent unnecessary hazard to aircraft servicing personnel; it should not be construed to be a complete statement of the provisions necessary to comply with the Health and Safety at Work Act, the responsibility for administration of which rests with the Health and Safety Executive.

AIRWORTHINESS NOTICE

**No. 24
Issue 44
29 September 2006**

UK Airworthiness Course

1 THE COURSE

The UK Airworthiness Course, organised by the CAA's International Services, is designed to provide an overview of the processes and procedures used by the UK Civil Aviation Authority to ensure that individuals, manufacturers, operators and maintenance organisations comply with the relevant airworthiness regulations, and set this work in the international context established by ICAO and JAAs.

2 WHO SHOULD ATTEND?

This course is aimed at Aviation Authorities, Operators, Maintenance Organisations and Manufacturers.

3 COURSES FOR 2007

Courses planned for 2007 are as follows:

25 February – 16 March 2007

30 September – 19 October 2007

4 APPLICATION

Early application is recommended. Please submit the attached application form to secure your place.

5 PAYMENT

The fee for this fully residential three-week course is £5150.

Payment should be received no later than 6 weeks prior to commencement of the course.

Should an application be withdrawn, our cancellation policy will apply. See our website for details www.caa.co.uk/srg/intsd/training

6 CANCELLATION

This Notice cancels Airworthiness Notice No. 24, Issue 43, dated 28 September 2005, which should be destroyed.

TOPICS COVERED IN THIS COURSE:**Foundation Topics**

International Civil Aviation Organisation (ICAO)
Structure of UK CAA
The Concept of Airworthiness
Air Law
The European Aviation Safety Agency (EASA)
The Joint Aviation Authorities (JAA)

Design and Production

Design Organisation Approval Process
Certification of Large Aircraft
Certification of Small Aircraft
Rotorcraft
Flight Handling
Propulsion Regulation
Powerplant Installation
Aircraft Equipment Approvals
Installation Approval
Structures
Avionics
Cabin Safety

Continuing Airworthiness

Maintenance Programmes
Reliability Programmes
Airworthiness & Avionics
Ageing Aircraft

Quality in Aircraft Maintenance
Engineer Licensing
EASA Part 145 Approved Organisations
Auditing Techniques

Flight Operations & Maintenance

The Air Operators Certificate
Aerial work & Corporate Aircraft
JAR OPS/EASA Part M (AOC Maintenance)
Flight Manuals and MMEL

Human Factors and Safety Management

Current Issues and practices

Interfaces

Accident and Occurrence Reporting
Flight Data Recording Analysis
Aircraft Accident Investigation

The Future of Regulation

Europe
EASA and the residual responsibilities of the National Aviation Authorities and the JAA

The course enjoys the support of a wide range of British Industry including Manufacturers, Operators and Maintenance Organisations. Visits to relevant organisations are included in the programme.

**AIRWORTHINESS COURSE
APPLICATION FORM**

Please return form to International Services:-
By fax: +44 (0) 1293 573992 By email: Training@srg.caa.co.uk



Course Dates – please tick box

25 February – 16 March 2007

30 September – 19 October 2007

Please tick below to show where you first heard of this course

Flight Advert Compass Training Flyer Internet Colleague Other _____

Name:
(FAMILY NAME) (FIRST NAME) (MIDDLE NAME) (TITLE)

Usual First Name:

Job Title:

Organisation:

Address:
.....

Tel:

Fax:

e-mail:

Course fee per person: £5150 (Fully residential)

Payment

I would like to pay by the following method - (please tick one box)

Charge to my Mastercard/Visa account.

Account Number:

3 digit Security Code (found on the back of the card)

Cardholder name:

Cardholder Billing address:
.....
.....

Expiry date: Signed:

Date:

Cheque forenclosed (send with form to: International Services, Aviation House, Gatwick Airport South, West Sussex, RH6 0YR, UK). Please make cheques payable to 'Civil Aviation Authority' and write your name, organisation and address on the reverse.

UK Civil Aviation Authority, International Services
Tel: +44 (0) 1293 573392 Fax: +44 (0) 1293 573992 www.caa.co.uk/srg/intsd/training

UK CAA COURSE BOOKINGS

TERMS AND CONDITIONS

1) Payment of Fees:

Payment is due upon application

2) Cancellation Policy

Client:

In the event of a client cancelling their booking, the following charges will apply:

4 weeks prior to commencement	No charge
2 – 4 weeks prior to commencement	50% of full fee
Less than 2 weeks prior to commencement	Full fee

Please note that cancellation instructions must be received in writing by International Services.

UK Civil Aviation Authority:

The UK CAA reserves the right to cancel its courses at any time. Clients will be notified and all monies will be refunded.

AIRWORTHINESS NOTICE**No. 26
Issue 4
29 September 2006****Information for Continued Airworthiness of UK Manufactured Aircraft****1 INTRODUCTION**

The attention of operators of aircraft manufactured in the United Kingdom and of the Type Design Organisations of those aircraft is drawn to this Notice which concerns the scope of continued airworthiness information to be expected from the UK in respect of all aeroplanes and rotorcraft. In due course, it is intended to expand the scope of this Notice to encompass engines, balloons and airships.

The purpose of this Notice is to provide information only. Nothing in it should be taken as overruling any written statement which may be given at any time by the CAA in respect of any given aircraft.

2 DUTIES OF TYPE DESIGN ORGANISATIONS

2.1 The attention of United Kingdom Type Design Organisations is drawn to their obligations under BCAR Chapter A5-1 or Part 21 as applicable, in respect of the provision and publication of information relating to the Continued Airworthiness of aeroplanes.

2.2 BCAR Chapter A5-1 and Part 21 require the Type Design Organisation to promulgate such information and ICAO Annex 8, Part II places responsibility on the CAA or EASA, as applicable, to transmit such information to other Contracting States which have advised that they have aircraft of the specific Type on their Registers.

2.3 Where a UK Type Design Organisation no longer exists or fails to discharge its responsibilities to provide the minimum provisions in respect of continuing airworthiness to enable ICAO Annex 8 to be satisfied, the CAA or EASA, as applicable, will review all options to maintain the ICAO Annex 8 certification status for the type. These will include:

- (a) finding another suitably approved organisation to take over the type design responsibility, or
- (b) where the aircraft is a simple old vintage type, finding a suitably capable organisation who will enter into a Type Responsibility Agreement with the CAA (see 2.4 below) or
- (c) CAA or EASA temporarily taking the responsibility directly (see 2.5 below).

2.4 For aircraft not subject to EASA regulation the holders of a Type Responsibility Agreement in accordance with BCAR A5-1, paragraph 4, although not meeting the criteria of a Type Design Organisation, are deemed to be capable of monitoring the continued airworthiness of the type to enable CAA to maintain its ICAO Annex 8 responsibilities.

2.5 Where neither a Type Design Organisation nor a Type Responsibility Agreement exist, in accordance with ICAO Continuing Airworthiness Manual Part 1, Chapter 3, paragraph 3.2, CAA or EASA, as applicable, may maintain the type certification status by:

- (a) taking the ICAO Annex 8 responsibility itself, and/or
- (b) placing a limit on the validity of the type certificate (or equivalent) until such time as service experience reveals an unsafe condition with no organisation able to submit proposals for modification.

3 UK AIRCRAFT TYPES HAVING CONTINUED AIRWORTHINESS SUPPORT

3.1 The Aircraft Types listed in the Appendices to this Notice are supported with information for Continued Airworthiness in accordance with:

- (a) paragraph 2.2 above for Type Design Organisations (Appendix 1).
- (b) paragraph 2.4 above for Type Responsibility Agreements (Appendix 2).
- (c) paragraph 2.5 above when CAA holds the responsibility (Appendix 3).

At the present time, the lists do not include balloons and airships.

4 UK AIRCRAFT TYPES NOT HAVING SUPPORT FOR CONTINUED AIRWORTHINESS

4.1 Owners and Operators of UK registered aircraft of UK manufacture are advised that those aircraft (except balloons and airships) not listed in the Appendices may no longer be eligible for Certificates of Airworthiness.

4.2 Owners and operators of aircraft registered in other countries should consult their national authorities concerning their eligibility for maintaining their National Certificate of Airworthiness.

4.3 Article 9 of the Air Navigation Order 2005 (as amended) and BCAR A5-1 paragraph 1.2 are applicable whether or not an Aircraft Type of UK manufacture is the subject of a UK Type Certificate.

5 WITHDRAWAL OF AIRWORTHINESS SUPPORT FOR AN AIRCRAFT TYPE

Where no examples of a type are known to be operating, the UK Constructor or Type Certificate Holder must notify their withdrawal of support for the Continued Airworthiness from an Aircraft Type, by the issue of an Alert Service Bulletin or similar document having CAA approval. The CAA will then advise other Airworthiness Authorities accordingly, by deleting reference to the Aircraft Type from the Appendix to this Notice.

6 CANCELLATION

This Notice cancels Airworthiness Notice No. 26, Issue 3, dated 20 October 1999, which should be destroyed.

AIRWORTHINESS NOTICE No. 26**Appendix 1***Issue 13**2 April 2004***Aircraft Types Of UK Manufacture, Having Continued Airworthiness Support**

Aircraft Types are recognised as having continued airworthiness support either from their original manufacturer or from another CAA Approved Organisation.

Listing

Aviation Trader ATL 98 Carvair	Aviation Traders Ltd.
BAC One Eleven Series	Airbus UK Ltd., Filton.
Beagle 121 Pup	De Havilland Support Ltd. (DHSL)
British Aerospace 146 Series	BAE Systems, Prestwick.
British Aerospace ATP Series	BAE Systems, Prestwick.
British Aerospace 748 Series (Construction Numbers 1534-1807 only)	BAE Systems, Prestwick.
British Aerospace Jetstream Series (3100/ 3200/ 4100)	BAE Systems, Prestwick.
Britten Norman (Islander Series)	Britten Norman.
Britten Norman (Trislander Series)	Britten Norman.
DH Moth Variants (DH60/ 60G/ 60M)	De Havilland Support Ltd. (DHSL)
DH 80A Puss Moth	De Havilland Support Ltd. (DHSL)
DH 82 Tiger Moth Variants (DH82A/ 82B/ 82C)	De Havilland Support Ltd. (DHSL)
DH 83 Fox Moth	De Havilland Support Ltd. (DHSL)
DH 84 Dragon	De Havilland Support Ltd. (DHSL)
DH 85 Leopard Moth	De Havilland Support Ltd. (DHSL)
DH 87 Hornet Moth	De Havilland Support Ltd. (DHSL)
DH 89a Rapide	De Havilland Support Ltd. (DHSL)
DH 90 Dragonfly	De Havilland Support Ltd. (DHSL)
DH 94 Moth Minor	De Havilland Support Ltd. (DHSL)
DH 104 Dove	De Havilland Support Ltd. (DHSL)
DH 114 Heron	De Havilland Support Ltd. (DHSL)
DHC-1 Chipmunk (Mk 21/ 22/ 22a/ 23)	De Havilland Support Ltd. (DHSL)
EH 101	EH Industries Ltd.
Handley Page Jetstream Mark 1	BAE Systems, Prestwick.
Scottish Aviation Bulldog	De Havilland Support Ltd. (DHSL)
Scottish Aviation Jetstream (Series 200)	BAE Systems, Prestwick.
Scottish Aviation Twin Pioneer	Atlantic Aeroengineering.
Short SD3-30	Short Brothers, Belfast.

Short SD3-60 and SD3 Sherpa and SD3-60 Sherpa
Short Skyvan

Short Brothers, Belfast.
Short Brothers, Belfast.

Slingsby T61 Venture
Slingsby T67
Westland Bell 47G-4A & -3B-1

Slingsby Aviation Ltd
Slingsby Aviation Ltd
GKN Westland Helicopters Ltd, Yeovil.

NOTE: The following are updated BAE Systems locations:

BAE Systems (Operations) Limited
BAE Systems Aircraft Services Group – Prestwick
BAE Systems Aircraft Services Group – Woodford
BAE Systems Aircraft Services Group – Brough

AIRWORTHINESS NOTICE No. 26**Appendix 2***Issue 3**29 September 2006*

Aircraft types where the continued airworthiness is maintained under a Type Responsibility Agreement with a suitably qualified organisation.

Type

BA Eagle 2

| Thruxton Jackaroo (modified DH82A)

Responsible Organisation

M J Miller, Duxford Airfield

De Havilland Support Ltd (DHSL)

AIRWORTHINESS NOTICE No. 26**Appendix 3***Issue 6**29 September 2006*

Aircraft types where the CAA is taking direct responsibility for continuing airworthiness in order to maintain the type certificated status, until such time as either a suitable responsible organisation is found or service experience reveals an unresolvable unsafe condition.

NOTE: Aircraft types no longer listed may not qualify for the issue of a C of A.

Type

Auster (all variants except Agricola)

Beagle A61 Terrier

Beagle A109 Airedale

Beagle 206

Edgar Percival EP9

Garland Linnet

Optica OA7

Percival P40 Prentice

Percival Proctor 3/4

Sprint 160 and Club Sprint

|

Miles M38 Messenger (Type responsibility under a suitable organisation is under review)

Miles M65 Gemini (Type responsibility under a suitable organisation is under review)

Percival P10 Vega Gull

AIRWORTHINESS NOTICE

No. 28
Issue 6
29 September 2006

**Civil Owned Aircraft Operating Under Contract to the Ministry of Defence
(MoD)****1 INTRODUCTION**

- 1.1 The Civil Aviation Authority has been approached on a number of occasions by civil organisations for advice regarding the operation of civil aircraft for the MoD. The purpose of this Airworthiness Notice is to explain the role of the CAA in respect of such operations.
- 1.2 The Ministry of Defence (MoD) has contracted civil organisations to provide support services. This has included the maintenance of military operated and registered aircraft used in transport, communication and training roles. All military registered aircraft are under the jurisdiction of the Secretary of State for Defence.
- 1.3 The scope of these contracts has developed to such an extent that civilian organisations have been requested to provide the aircraft and training staff as well as the maintenance support for the envisaged operation. It is expected that further contracts for support by civilian organisations will be offered for tender.

- 2 CIVIL REGISTERED AIRCRAFT** Any civil registered aircraft operating on contract to the MoD remain under the jurisdiction of the CAA. The provisions of the Air Navigation Order and Regulation (EC) No. 1592/2002 as applicable apply to these aircraft at all times.

3 CIVIL OWNED MILITARY REGISTERED (COMR) AIRCRAFT**3.1 Background**

- 3.1.1 In the context of using aircraft of civil type design for military purposes it has been recognised by the MoD that certain roles assigned to such aircraft would require operation outside the provisions of the Air Navigation Order, e.g. flight below 500 ft and certain helicopter winching operations. To facilitate such operations the aircraft should be placed on the military register and be subject to regulation by the MoD. This has led to the concept of aircraft that are owned by civilian organisations carrying military registrations, i.e. Civil Owned Military Registered (COMR).

- 3.1.2 As the responsible authority for the COMR aircraft, the MoD has chosen to contract the CAA to provide a continued airworthiness oversight service. Subject to the provisions of this contract the CAA will permit the pooling of aircraft parts and appliances between the COMR aircraft and civil registered aircraft which share the same type certificate.

NOTE: Civil operators who enter into a contract with the MoD to provide COMR aircraft will be notified in writing by the CAA that the pooling of parts and appliances is permitted for those aircraft included in the COMR contract and as such are subject to oversight by the CAA. The pooling of civil and military parts and appliances is not permitted in respect of military registered aircraft that are not subject to oversight by the CAA.

3.2 MoD /CAA Contract

- 3.2.1 The continued airworthiness oversight by the CAA will be aligned with the requirements and procedures that would be applicable to a civil registered example of the aircraft type. The principal elements for CAA oversight are as follows:

- (a) COMR aircraft must be of a type deemed to have a certificate issued in accordance with Regulation (EC) No. 1702/2003, or BCAR Section A/B, and to have been issued with a Certificate of Airworthiness by the CAA (signifying compliance with ICAO Annex 8 requirements), prior to transfer of the individual aircraft to the Military Register.
- (b) Maintenance of COMR aircraft shall be undertaken by an organisation holding a Part-145 maintenance approval for the aircraft type.
- (c) Certification of maintenance on COMR aircraft is to be by personnel authorised by the Part-145 approved maintenance organisation in accordance with the provisions of Airworthiness Notice No. 14, and the associated supplements.
- (d) COMR aircraft and the associated records are to be maintained in accordance with a maintenance schedule/programme approved by the CAA.
- (e) COMR aircraft and the associated records will be subject to an annual/triennial survey by the CAA, equivalent to a Certificate of Airworthiness renewal survey, commencing 12/36 months after the date of transfer of the aircraft to the Military Register. The Part-145 approved maintenance organisation will be required to notify the CAA Applications and Approvals Department that the annual/triennial survey is due, at least 30 days prior to the due date. Flight testing of the aircraft will be required in accordance with BCAR A/B 3-3 and A/B 3-5.
- (f) COMR aircraft are to be operated in accordance with the applicable approved flight manual. Any changes to the flight manual must be approved by EASA or the CAA as appropriate in accordance with Part-21 or BCAR Chapter A/B7-2 respectively.

NOTE: In accordance with MoD policy, promulgated in Joint Service Publication 553, the MoD will supplement the conditions and limitations of aircraft operation within a service regulated flying environment through the issue of a Military Aircraft Release.
- (g) Modifications to COMR aircraft must be approved by EASA or the CAA as appropriate in accordance with Part-21 or BCAR Chapter A2-5 or B2-2 paragraph 7 respectively.

NOTE: Modifications to install military equipment, which does not hold civil approval, will need to be assessed and substantiated as being of no hazard to the aircraft by an appropriate Part-21 or BCAR A8-8 Group E2 approved design organisation. Operational performance of such modifications will not be evaluated other than the effect on aircraft safety.
- (h) All parts and appliances to be used on COMR aircraft, except special role equipment of military origin with no civil approval, are to be maintained by a Part-145 approved maintenance organisation. Special role equipment of military origin should be maintained in accordance with the manufacturer's recommendations.
- (i) COMR aircraft must remain in compliance with Airworthiness Directives, mandatory modifications, inspections and changes to approved documentation applicable to the type as specified in CAA Civil Aviation Publication (CAP) 747 - Mandatory Requirements for Airworthiness.

3.2.2 Enquiries regarding the content of this notice should be made to the Applications and Approvals Department,
Civil Aviation Authority,
Safety Regulation Group,
Aviation House,
Gatwick Airport South,
West Sussex,
RH6 0YR.
Telephone 01293 573160.

4 CANCELLATION

This Notice cancels Airworthiness Notice No. 28, Issue 5, dated 29 March 2006, which should be destroyed.

Safety Regulation Group – General Information

1 HEAD OFFICE

1.1 The address of the Safety Regulation Group Head Office is:

Civil Aviation Authority
Safety Regulation Group
Aviation House
Gatwick Airport South
West Sussex
RH6 0YR
Telephone: Crawley (01293) 567171
Telex: 878753
Facsimile: Crawley (01293) 573999

There is a direct dial system for all staff at Aviation House, Gatwick, which should be used whenever possible. A short list of useful numbers is given in Appendix 1.

A list of UK Regional Offices is given in Appendix 2 and for Overseas Offices in Appendix 3.

1.2 When in the vicinity, Aviation House can be identified by its proximity to a large radar scanner and old Beehive terminal building. The building itself is four storeys high, grey in appearance with tinted glass windows.

Maps showing the location of Aviation House and details of the shuttle bus service from the South Terminal can be found at www.caa.co.uk under the heading Publications.

Printed copies are available from:

CAA Library
GW, Aviation House
Gatwick Airport South
West Sussex
RH6 0YR
Telephone: 01293 573725

1.3 A visitors' car park is provided at Aviation House. Visitors arriving by train should alight at Gatwick Airport Station, cross the Airport Terminal floor to the exit beside International Arrivals, this will lead to the Perimeter Road and a Gatwick Direct shuttle bus, which operates at 20-minute intervals during the day. Visitors should enter Aviation House by the main entrance, adjacent to the visitors' car park.

1.4 The Personnel Licensing Department provides an enquiry service at the Flight Crew Licensing public counter between 0900 and 1700 hours on normal working days.

1.5 Aviation House Gatwick Library is open to personal callers from 0930 to 1630.

2 INFORMATION FOR ENGINEERS

2.1 The CAA is anxious that there should be close liaison between its Surveyors and Licensed Aircraft Maintenance Engineers, and they should, in their own interest, keep in close touch with the CAA Office responsible for the supervision of their area.

2.2 When changing their place of employment, engineers should notify the CAA Office in the area which they are leaving. They should also notify the CAA Office responsible for the

supervision of their new area of employment. A list of UK Regional Offices is given in Appendix 2 and for Overseas Offices in Appendix 3.

NOTE: This paragraph does not apply to Derby which is an area office for Propulsion Department.

3 AIRCRAFT REGISTRATION SECTION

Information on the United Kingdom Register of Aircraft and the United Kingdom Register of Aircraft Mortgages is available from:

Aircraft Registration Section

Civil Aviation Authority

45-59 Kingsway

London

WC2B 6TE

Telephone: 020 7453 6666

Fax: 020 7453 6670

e-mail: aircraft.reg@srg.caa.co.uk

A public counter is open to personal callers from 1000 to 1600 hours on working days.

4 CANCELLATION

This Notice cancels Airworthiness Notice No. 29, Issue 14, dated 23 October 2000, which should be destroyed.

AIRWORTHINESS NOTICE No. 29**Appendix 1***Issue 16**29 September 2006***Direct Dial Telephone Numbers****AERODROME STANDARDS**

Head of Aerodrome Standards Department	01293 573252
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AIRCRAFT CERTIFICATION DEPARTMENT

Department Administration	01293 573293
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AIRCRAFT REGISTRATION SECTION

UK Register of Civil Aircraft	020 7453 6666
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UK Register of Aircraft Mortgages	020 7453 6666
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Head of Aircraft Registration	020 7453 6660
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APPLICATIONS AND APPROVALS DEPARTMENT

Deputy Manager – Certification Enquiries – Technical	01293 573160
------------------------------------------------------	--------------

Help Desk – Certification Enquiries Administration (Incl. Fees)	01293 768374
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Application and Approvals E-mail Address	A&A@srg.caa.co.uk
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ENGINEERING DEPARTMENT

Head of Department	01293 573140
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Aircraft Systems and Equipment Branch (Administration)	01293 573134/3138
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Aircraft Systems and Equipment Branch (E-mail)	aircraft.systems@srg.caa.co.uk
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Propulsion Branch (Administration)	01293 573195
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Propulsion Branch (E-mail)	propulsion.dept@srg.caa.co.uk
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Structures and Materials Branch (Administration)	01293 573138
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Structures and Materials Branch (E-mail)	aircraft.systems@srg.caa.co.uk
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FINANCE

Chief Accountant	01293 573784
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FLIGHT CREW LICENSING

Administration	01293 573700
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FLIGHT DEPARTMENT

Department Administration	01293 573709
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FLIGHT OPERATIONS

Inspectorate, Aeroplanes	01293 573710
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Inspectorate, Helicopters	01293 573443
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Inspectorate, General Aviation	01293 573540
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Policy, Commercial	01293 573412
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Policy, General Aviation	01293 573412
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Administration, Commercial	01293 573399
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Administration, General Aviation	01293 573525
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INTERNATIONAL TRAINING SERVICES

Administration 01293 573391

LIBRARY AND INFORMATION CENTRE

General Enquires 01293 573725

MEDICAL

Administration 01293 573700

PERSONNEL LICENSING DEPARTMENT

Engineering and Flight Crew Licensing 01293 573700

POLICY AND STANDARDS DEPARTMENT

Section Administration 01293 573802

Airworthiness Directives 01293 573150

SAFETY INVESTIGATION AND DATA DEPARTMENT

Administration 01293 573220

SURVEY DEPARTMENT

Department Administration 01293 573366

Chief Surveyor's Office 01293 573368

AIRWORTHINESS NOTICE No. 29**Appendix 2***Issue 29**29 September 2006***CAA Safety Regulation Group - UK Regional Office Addresses**

Maps showing the location of our UK Regional Offices can be found at <http://www.caa.co.uk/caaoffices>

Printed copies are available from:

CAA Library

GW, Aviation House

Gatwick Airport South

West Sussex

RH6 0YR

Telephone: 01293 573725

NOTE: For all Regional Offices listed below, please address correspondence to 'Civil Aviation Authority, Safety Regulation Group,

1 GATWICK

Aviation House

Gatwick Airport South

West Sussex

RH6 0YR

Telephone: Crawley (01293) 768600

Facsimile: (01293) 768601

2 HEATHROW

Sipson House,

595 Sipson Road,

Sipson,

West Drayton,

Middlesex,

UB7 0JD.

Telephone: 020 8260 2950

Facsimile: 020 8260 2972

3 LUTON

First Floor,

Plaza 668,

Hitchin Road,

Stopsley

Luton,

Beds.,

LU2 7XH.

Telephone: (01582) 410304

Facsimile: (01582) 457961

- 4** **MANCHESTER**
Suite 5,
International Office Centre,
Styal Road,
Wythenshaw,
Manchester,
M22 5WB.
Telephone: 0161 499 3055
Facsimile: 0161 499 3048
- 5** **NE AND MIDLANDS**
Building 65,
Ambassador Road,
Nottingham East Midlands International Airport,
Castle Donnington,
Derby,
DE74 2SA.
Telephone: (01332) 813400
Facsimile: (01332) 850335
- 6** **STANSTED**
Walden Court,
Parsonage Lane,
Bishop's Stortford,
Herts.,
CM23 5DB.
Telephone: (01279) 466747
Facsimile: (01279) 466757
- 7** **STIRLING**
7 Melville Terrace,
Stirling,
Scotland,
FK8 2ND.
Telephone: (01786) 431400
Facsimile: (01786) 448030
- 8** **WESTON-SUPER-MARE**
Unit 502,
Worle Parkway,
Weston-Super-Mare,
BS22 6WA.
Telephone: (01934) 529850
Facsimile: (01934) 522068

AIRWORTHINESS NOTICE No. 29**Appendix 3***Issue 21**23 October 2003***CAA Safety Regulation Group – Overseas Airworthiness Advisory Services**

It should be noted that although a CAA Surveyor may be present, the offices listed below are predominantly established to satisfy an advisory service with the local Department of Civil Aviation. All general enquiries should therefore be directed to the Aircraft Maintenance Standards Department at Aviation House, Gatwick.

BRUNEI, DARUSSALAM

c/o Department of Civil Aviation
Brunei International Airport
Bandar Seri Begawan 2015
Negara
Brunei
Darussalam
Telephone: 00-673-2 330649 (Direct Line)
Telephone: 00-673-2 330142 Extn 1322
AFTN: WBSBYA
Telex: BU 2267 DCABWN
Telex: BU 2571 RTT
Telegraphic Address: 'CIVILAIR BRUNEI'
Facsimile: 00-6732-330649

FIJI*

PO Box 9385
Nadi International Airport
Nadi
Fijian Islands
South Pacific
Telephone: 00-679 721357 (Direct Line)
Telephone: 00-679 721555 Extn 305
Cables: CIVILAIR
AFTN: NFHOYAYX
Facsimile: 00-679 721500

* Address correspondence to 'Airworthiness Advisory Services. UK Civil Aviation Authority, Safety Regulation Group,

CYPRUS

c/o Department of Civil Aviation
Grivas Dhigenis Avenue No. 16
Nicosia
Cyprus
Telephone: 00-3572 2 404100/404101
Andrew Varley: 00-3572 2 404120
Facsimile: 00-3572 2 304708

AIRWORTHINESS NOTICE

No. 32
Issue 4
29 March 2006

Overhauls, Modifications, Repairs And Replacements to Aircraft not Exceeding 2730 kg with a National Certificate of Airworthiness in the Special Category

- 1** There have been a number of accidents to aircraft in the above Category on which it was subsequently established that work had been done which was such that, under Article 10 of the Air Navigation Order 2005 (as amended), the Certificate of Airworthiness may have ceased to be in force.
- 2** Article 10 (a) of the Air Navigation Order 2005 (as amended), provides that a Certificate of Airworthiness issued in respect of an aircraft shall cease to be in force if the aircraft, or such of its equipment as is necessary for the airworthiness of the aircraft, is overhauled, repaired or modified, or if any part of the aircraft or of such equipment is removed or is replaced, otherwise than in a manner and with material of a type approved by the Authority either generally or in relation to a class of aircraft or to the particular aircraft.
- 3** Although Articles 16(5) and 16(6) of the Order specifically excludes certain Special Category aircraft from the requirements for the issue of Certificates of Release to Service, the provisions of Article 10 apply to all aircraft without exception. Any person, therefore, who intends to undertake work on an aircraft covered by this Notice should only do so when he is in possession of adequate knowledge of the tasks involved, has access to the necessary facilities and the relevant maintenance, overhaul or repair manuals, and uses parts or materials which are known to satisfy CAA requirements. If any doubt exists as to whether these conditions are met, the person concerned should seek advice from a CAA approved organisation or a licensed aircraft maintenance engineer.
- 4** It is emphasised that a person who flies an aircraft when the Certificate of Airworthiness has ceased to be in force by virtue of Article 10 of the Air Navigation Order 2005 (as amended), may render himself liable to prosecution for contravention of Article 8 of the Order and there may be other serious consequences.
- 5** **CANCELLATION**
This Notice cancels Airworthiness Notice No. 32, Issue 3, dated 29 October 2001, which should be destroyed.

AIRWORTHINESS NOTICE**No. 39
Issue 5
29 October 2001****The Selection And Procurement Of Electronic Components****1 INTRODUCTION**

The selection and procurement of electronic components for use within aircraft equipment or for direct fitment to airframes continues to present problems for those concerned with airworthiness procedures for Civil Aircraft. This Notice prescribes how the relevant British Civil Airworthiness Requirements (BCAR) should be applied in order to achieve design and quality control of equipment and components.

2 DEFINITION

2.1 The term Electronic Components, as interpreted by the BSI and other agencies, may include such items as micro-switches or electrical connectors which are likely to be fitted directly to an airframe. More conventionally the term Component also refers to parts such as capacitors and resistors which have no method of mounting other than by the soldered electrical connections. The application of such terms is usually within an equipment which itself is approved for installation in an aircraft.

2.2 For the purpose of this Notice such items are referred to as:-

- (a) **Aircraft Components**, for items *fitted directly* to airframe or engine, and
- (b) **Component Parts**, for items *fitted within* equipment. BCAR Chapter A4-8 gives further definition of the terms used in this Notice.

3 DESIGN RESPONSIBILITY

3.1 **Aircraft Components** The requirements for electrical aircraft components are given in BCAR Chapter A4-8 and JAR 25.1351 to 25.1363, the installation requirements of electrical items is further considered in BCAR Section D6-1.

3.2 For the correct interpretation of this Notice it is important to understand the significance of the terms '**Controlled**' and '**Uncontrolled**' as applied to electrical components. For items used as Aircraft Components as defined here, the known or probable use will determine the approval category and, for Controlled Items, the requirements of paragraph 5 of BCAR Chapter A4-8 will need to be followed as appropriate. The term 'Uncontrolled' relates solely to the status of items in their functional role in an aircraft and does not imply that such components may be ignored. Paragraph 2 of BCAR Chapter D6-1 requires those designing installations to consider the suitability of 'Unclassified parts and Equipment' and, where necessary, these 'shall be controlled to a standard to ensure compliance with the relevant requirements of Section D'. Thus the design and build standard of the 'Uncontrolled Item' may still be subject to a measure of control under the CAA procedures prescribed in this Notice to ensure that no new unassessed failure modes are introduced.

3.3 The selection and use of Aircraft Components is normally the responsibility of an Approved Organisation with appropriate Terms of Approval under BCAR Section A procedure. Such organisations need to satisfy themselves, and ultimately the CAA, as to the suitability of an equipment in a given application. This is most conveniently done by obtaining a Declaration of Design and Performance (DDP) to a format based upon that given in BCAR Chapter A4-8 paragraph 7, BS 3G100 Part 1 or ISOR224. The authorisation of the DDP by an Approved Signatory within an Approved Organisation and its acceptance by the user constitutes

Approval under Component Procedures. If the design authority for an equipment additionally obtains approval for their product from the CAA then the equipment is said to be 'Accessory Approved'. It is important to note, however, that 'Accessory Approval' does not absolve the user from ensuring that the item to be used as an Aircraft Component is suitable for the particular application.

- 3.4 The assurance that the products obtained are as declared on the DDP is a function of a clearly defined purchase order requiring 'CAA Release'. (See paragraph 5) In the context of this Notice it is essential that users appreciate that generalised claims that an item is approved can only relate to the conformity with specifications, compliance with which may, or may not, have been validated by a third party. Approval for aircraft use is a function of selection by an authorised Design Authority who will, in effect, approve the application of the item.

4 COMPONENT PARTS – SELECTION

- 4.1 The designer of a piece of equipment which utilises individual component parts has freedom of choice in the matter of selection provided that the equipment taken as a whole meets its design specification and the relevant Airworthiness Requirements. The Requirements of BCAR Chapters A4-1, A4-2 and A4-3 have to be satisfied and this establishes the need for control of the identification, reliability and modification standard of component parts. Users and overhaulers of equipment need to be able to procure component parts which will maintain the established and accepted reliability of the total equipment. It follows that all necessary information regarding special testing, selection or condition of component parts shall be given in Overhaul Manuals.
- 4.2 Items produced to BS 9000 Specifications may well be suitable if the defined level of quality is compatible with the declared reliability for the total equipment, as further noted in paragraph 7.

5 USER RESPONSIBILITY

- 5.1 Users and overhaulers of equipment are responsible for showing compliance with the requirements of BCAR Chapter A4-2 when obtaining replacement 'component parts' as stated in paragraph 4 of this Notice. It is emphasized that overhaulers of equipment are required to obtain authorisation before making substitutions or in any way deviating from the spares or replacements listed in the relevant Approved Overhaul or Maintenance Manuals of a 'controlled' item of equipment. In all cases of difficulty in procurement of the items referred to in Approved Manuals, the acceptance of alternatives must include authorisation by an appropriate Design Organisation.
- 5.2 BCAR Chapter A4-8 paragraph 6.1 provides guidance on the control of quality of components obtained from overseas suppliers and Airworthiness Notice No. 11 relates to Acceptance of Aeronautical Parts.

6 THE APPROVED CERTIFICATE

- 6.1 Users are reminded that the function of an Approved Certificate issued by a CAA Approved Organisation (who will hold an Approval Number DAI/ xxxx/ xx or AI/ xxxx/ xx) is intended to ensure that the purchaser obtains the items which are ordered. The use of an Approved Certificate does not automatically confer any 'CAA Approval' status on the product and it is the responsibility of the purchaser to reference the required part or drawing number on his order, together with any other necessary definition. The issue of a proprietary item on an Approved Certificate indicates that the producing organisation is approved and that appropriate CAA procedures have been followed, and will be followed in the event of any subsequent enquiry. It is apparent, therefore, that it is not necessary for products to be Design Approved by the CAA before they are released unless this is a condition of the order.

6.2 Purchasers should note that airworthiness procedures are applicable to airborne equipment and requests for 'CAA release' should be restricted to items which fall within the requirements of BCARs and where, therefore, the release has significance.

7 BS 9000 ELECTRONIC COMPONENTS OF ASSESSED QUALITY

Users proposing to accept components supplied to any form of BS 9000 specification or other specification systems employing similar formats should note and understand the assured quality aspect which is employed. Statistical sampling techniques essentially involve an element of risk which is determined by the Acceptance Quality Level (AQL) and sampling plans referenced in the specifications. The CAA will expect users of BS 9000 components to hold copies of specifications concerned and to be in a position to appreciate the significance of the quality assurance techniques employed in these and other specifications involving sampling techniques.

8 CANCELLATION

| This Notice cancels Airworthiness Notice No. 39, Issue 4, dated 16 September 1988, which should be destroyed.

AIRWORTHINESS NOTICE

No. 43
Issue 3
21 March 2005

Aircraft Field Loadable Software (FLS) and Database Field Loadable Data (DFLD)**1 INTRODUCTION**

- 1.1 The CAA has become aware of a number of occasions where a lack of adequate control of FLS and DFLD by operators has given rise to safety related occurrences.
- 1.2 The purpose of this Airworthiness Notice is to provide guidance for operators and maintenance organisations on the configuration management, procurement, embodiment and tracking of aircraft FLS and DFLD to ensure that continued airworthiness and operating safety standards are met.
- 1.3 The content of this Airworthiness Notice is based upon established as well as developing international standards.
- 1.4 It is recognised that operators and maintenance organisations may have already implemented satisfactory alternatives that meet the intent of this Airworthiness Notice. It will not be necessary for those organisations to change these procedures if they already meet the intent of this notice.
- 1.5 The content of this notice should be used to supplement the content of the Type Certificate (TC) or Supplemental Type Certificate (STC) holder's instructions.
- 1.6 This Airworthiness Notice is technology focussed and the content should be considered as applicable to any aircraft using this level of technology.
- 1.7 This Airworthiness Notice does not apply to software applications for Electronic Flight Bags. For guidance on this subject the reader should refer to JAA Administrative and Guidance Material, Section Four: Operations, Part Three: Temporary Guidance Leaflets (JAR-OPS): Leaflet No. 36: Approval Of Electronic Flight Bags (EFBs)

2 DEFINITIONS

- 2.1 For the purpose of this Airworthiness Notice the following definitions apply:
- (a) **Aircraft Configuration List (ACL):** A list of Line Replaceable Units (LRU) and modules with Loadable Software Aircraft Parts (LSAPs) that are applicable to a specific aircraft. This list may be contained on data supplied by the Type Certificate (TC) Holder in a Service Bulletin (SB), Service Information Letter (SIL) or Illustrated Parts Catalogue (IPC), or as a separate tracking system.
- (b) **Field Loadable Software (FLS):** Software (executable code) that can be loaded without removing the system or equipment from the aircraft. FLS can be loaded onto an aircraft system by a maintenance mechanic/technician in accordance with defined maintenance manual procedures. FLS can be configured as a component of target hardware and thus affect the part number of the target hardware. There are numerous types of FLS, but most can be categorised as follows:
- (i) **Loadable Software Aircraft Part (LSAP):** FLS that is required to meet a specific airworthiness or operational requirement or regulation and not considered as a component of the target hardware, but is considered to be part of the aircraft approved design and therefore an aircraft part requiring formal controlled release documentation (EASA Form 1 or FAA 8130-3).

- (ii) **User Modifiable Software (UMS):** Software declared by the aircraft Type Certificate holder's design organisation (or Supplementary Type Certificate holder's design organisation) as being intended for modification by the aircraft operator, usually without review by the CAA, the aircraft TC holder's (or STC holder's) design organisation or the equipment manufacturer, if modified within the constraints established during certification. Should the need arise to modify the software outside of these constraints then the operator will need to seek guidance from the CAA, the aircraft Type Certificate holder's design organisation (or Supplementary Type Certificate holder's design organisation) and/or the equipment manufacturer on how this should be accomplished.
 - (iii) **Option Selectable Software (OSS):** LSAP that contains approved and validated components and combinations of components that may be activated or modified by the aircraft operator within defined TC/STC Holder boundaries.
- (c) **Database Field Loadable Data (DFLD):** Data that is field loadable into target hardware databases.
 - (i) **Database:** A term generally misused to describe the "data" that is field loaded into target hardware. However, the database is actually an embedded item that resides within the target hardware and is not, itself, field loadable. The process normally described as "loading a database" actually loads a data file onto the target hardware's embedded database. The updating of the data held on a database, by the uploading of a new data file, will normally be conducted to provide for modifications to operating functions, including the revision of the aircraft performance or navigational data. It should be noted that whilst "LSAP" is only associated with FLS (executable code), certain DFLD should be treated in the same manner, in that they will have their own part number requiring control as an aircraft part and should be accompanied by controlled release documentation (EASA Form 1 or FAA 8130-3). The form of release required for different types of DFLD is defined in paragraph 3.
 - (ii) **Data File:** A specific file that contains the actual data that is the object of the database and is field loaded.
- (d) **Target Hardware:** The hardware such as Line Replaceable Units (LRU) and modules that are intended to be loaded with FLS or DFLD.
 - (i) Examples of target hardware for LSAP (FLS) could be: an Electronic Engine Control (EEC), a Digital Flight Data Acquisition Unit (DFDAU), an Auxiliary Power Unit's Electronic Control Unit (ECU), a Flight Guidance Computer (FGC), or an Integrated Modular Avionics (IMA) Unit.
 - (ii) Examples of target hardware with databases that could be field loaded with DFLD that need to be tracked in the same manner as an aircraft part, could include: a Flight Management Computer (FMC), a Terrain Awareness Warning System (TAWS) Computer, or an IMA Unit.
 - (iii) Examples of target hardware for UMS could be: Aircraft Condition Monitoring System (ACMS) and In-Flight Entertainment System (IFE).
 - (iv) Examples of target hardware for OSS could be an IMA Unit.
- (e) **Media Distribution of FLS or Data files:** A process whereby FLS or Data files are moved from the production organisation or supplier to a remote site (generally the operator) using storage media.
- (f) **Storage Media:** Device that contains a copy of the FLS or Data files such as a diskette, Personal Computer Memory Card International Association (PCMCIA) card, Compact Disc Read Only Memory (CD ROM), Onboard Replaceable Modules (OBRM), file servers or portable data loaders.
- (g) **Electronic Distribution of FLS or Data files:** A process whereby FLS or DFLD are moved from the producer or supplier to a remote site (generally the operator) without the use of FLS storage media.

3 RELEASE OF FLS AND DFLD

3.1 Methods of Release

The release of FLS and DFLD is dependant upon whether it is required to meet a specific airworthiness or operational requirement, or certification specification.

3.2 Release of Non-Required FLS or DFLD

For FLS or DFLD that is not required to meet a specific airworthiness or operational requirement or regulation, or certification specification, a Certificate of Conformity should be sufficient.

3.3 Release of Required FLS or DFLD

Where the FLS or DFLD is required to perform a function to meet a specific airworthiness or operational requirement or regulation, or certification specification, the following should be taken into account.

3.3.1 LSAP

An EASA Form 1 or FAA 8130-3 should accompany any FLS (executable code) that is required to meet a specific airworthiness or operational requirement or regulation, or certification specification, i.e. LSAP. Examples of LSAP that would require such release could be FLS that is associated with any of the examples of target hardware in paragraph 2(d)(i) above.

3.3.2 DFLD

An EASA Form 1 or FAA 8130-3 should accompany any DFLD (data file) that is required to meet a specific airworthiness or operational requirement or regulation, or certification specification. Examples of DFLD that require such release could be those associated with IMA, as mentioned in paragraph 2(d)(ii) above.

3.3.3 Navigational Data

A "Letter of Acceptance" or equivalent should accompany the release of any navigational database's DFLD because an EASA Form 1 or FAA 8130-3 cannot be provided.

3.4 Release Equivalency

It should be noted that Certificates of Conformance are not considered to be equivalent to either an EASA Form 1 or FAA 8130-3.

3.5 Electronic Distribution Release

The Electronic Distribution of FLS or Data files should recognise this requirement and provide an equivalent means of formally controlled release. This will need to be agreed by the CAA.

4 PROCUREMENT AND DOCUMENTATION OF FLS AND DFLD

4.1 FLS and DFLD

FLS and DFLD are normally delivered with the new aircraft and contained in the Target Hardware and in media sets in binders or storage bins, noting that the part number of the Target Hardware may not necessarily indicate the loaded software part number. (See Appendix 1 Paragraph 1.4(b))

4.2 LSAP

Procured LSAP must be obtained from an approved source, using the part number specified and accompanied by an EASA Form 1 or an equivalent acceptable to the CAA. The part number can typically be confirmed as approved by reference to documents such as the IPC, SB and SIL, or to an appropriately approved modification (TC/ATC/STC).

4.3 DFLD

Data Field Loadable Data files used for the update of databases such as Navigational Databases, Terrain Databases and Model/Engine Databases should be acquired from a source that is acceptable to the Target Hardware Manufacturer, and accompanying documentation and DFLD Storage Media containing the data file should clearly identify this.

The DFLD storage media should also be annotated with the originator identification and quality/conformity markings. The Electronic Distribution of DFLD should recognise these points and provide an equivalent level of control agreed by the CAA. The responsibility of obtaining appropriate confirmation of the authenticity, performance specification and accuracy of the DFLD rests with the operator. It is also recommended that a "confidence" check of the received data be accomplished to ensure that the new data satisfies the intended use. The DFLD should be subjected to a configuration control process acceptable to the CAA (see Appendix 1 paragraph 1)

4.4 **UMS**

UMS is FLS that is normally modified by the operator, their contracted maintenance organisation or approved vendor using the appropriate methods identified during initial certification. The responsibility for obtaining adequate documentation confirming the appropriateness of the software rests with the operator. If an instance occurs, when a change to target hardware's software that has been defined as UMS actually modifies aircraft performance information presented to the flight crew, CAA advice should be sought as approval may be required and the software classification of UMS may be removed.

4.5 **Distribution of FLS and DFLD**

FLS and Data Files can be distributed to the aircraft operator using a variety of methods, which include use of software media (such as diskettes), CD ROMs, PCMCIA Cards or electronically, such as via the Internet. The operator is responsible for establishing a process to ensure that the FLS or data file received is the FLS or data file approved and that the FLS or data file has not been corrupted (e.g. making use of a Cyclic Redundancy Check (CRC)). Complying with the aircraft manufacturers recommendations and utilising the recommended tooling could achieve this.

4.5.1 **Media Distribution of FLS or DFLD**

If the FLS or DFLD is to be supplied using diskettes, CD ROMs or PCMCIA cards the following should be considered:

- (a) The FLS or DFLD should be virus checked upon receipt and stored in a controlled location if not being immediately loaded onto an aircraft system. (This requirement assumes that the media store has appropriate protections and controls to prevent unauthorised access to the media. If this is in any doubt, the FLS or DFLD should be virus checked immediately prior to loading it onto an aircraft system). The target hardware manufacturer should provide guidance on how this virus checking should be accomplished.
- (b) The method of transportation should be appropriate to ensure that it does not result in damage or corruption of the storage media or FLS or DFLD. If this is in any doubt, the FLS or DFLD should not be loaded onto an aircraft system.
- (c) The FLS or DFLD should be accompanied by the appropriate release paperwork, as stated in paragraph 3.

4.5.2 **Electronic Distribution of FLS or DFLD**

EDS is increasingly being utilised to transfer FLS or DFLD from the supplier to an operator. The obvious advantages of this are the speed of distribution and the removal of the need for physical transport media. This should be accomplished to an acceptable standard (see Appendix 1 paragraph 1). Such an acceptable standard would normally be that of meeting the intent of the guidance in this notice. If the FLS or DFLD is supplied over the Internet this should be accomplished in accordance with a procedure detailed in Appendix 1, paragraph 1.3.

5 **FLS AND DFLD STORAGE MEDIA HANDLING**

The operator is responsible for ensuring the suitability of any storage media used. In order to ensure FLS and DFLD integrity, the storage media should be kept and processed in an environment that is not detrimental to that storage media, noting any limitations associated with that media. Additional information may be found in Appendix 1.

6 FLS AND DFLD LOADING AND CERTIFICATION

6.1 Prior to loading

Prior to loading FLS or DFLD onto the aircraft the operator should consider the points in Appendix 1.

6.2 Loading FLS or DFLD

Loading FLS or DFLD onto aircraft target hardware should be carried out and verified in accordance with the established processes and procedures detailed in the maintenance manual or associated approved maintenance or modification data.

6.3 Recording aircraft FLS and DFLD configuration

All FLS and DFLD loading should be recorded in the Aircraft Configuration List (ACL), and a copy kept on board the aircraft with a further copy also kept in the operators' aircraft maintenance records system.

6.4 Aircraft Release to Service

After any loading of FLS or DFLD a Certificate of Release to Service must be issued by an appropriately authorised/licensed person.

7 REPLICATION OF FLS AND DFLD

7.1 FLS or DFLD copies

If FLS or DFLD copies are to be made by the aircraft operator for use within their organisation, this should be accomplished using the aircraft type design organisation approved FLS and DFLD Storage Media replication process. This replication should be recorded in an Aircraft FLS/DFLD Replication Register and be traceable to the original source from which copies were made. This is to ensure that this activity could be audited.

7.2 Release documentation

A copy of the original JAA Form One, EASA Form 1, FAA 8130-3 or other CAA accepted release documentation, as defined in paragraph 3, should accompany the FLS or DFLD Storage Media containing copies of the FLS or DFLD.

8 PROCEDURE

8.1 Configuration Control

It is essential that operators consider use of appropriate procedures such that at any time they can determine the equipment, FLS and DFLD configuration of each aircraft in their fleet.

8.2 Use of notice recommendations

Operators involved in the procurement, modification and embodiment of FLS and DFLD should consider producing a documented procedure within their Company Procedures, Maintenance Management Exposition (MME) or equivalent that describes their means of implementing procedures recommended by this notice. Further guidance can be found within Appendix 1 to this Notice. It is expected that any procedure would cover the complete cycle from procurement specification; distribution methodology (e.g. Electronic Distribution, media type etc.); receipt inspection and assessment through to embodiment; subsequent testing and release to service. This process should also be considered for inclusion in the operator's internal audit programme.

8.3 Staff

Operators should ensure that sufficient numbers of competent staff are retained in order to ensure that the intent of guidance within this Notice is met.

9 RECOMMENDED REFERENCE MATERIAL

USA	Europe	Description
RTCA DO 178B	EUROCAE Doc. ED 12B	Software Considerations in Airborne Systems and Equipment Certification
RTCA DO 200A	EUROCAE Doc. ED 76	Standards for Processing Aeronautical Information
	JAA TGL 36	JAA Administrative and Guidance Material, Section Four: Operations, Part Three: Temporary Guidance Leaflets (JAR-OPS): Leaflet No. 36: Approval Of Electronic Flight Bags (EFBs)

NOTE: Or any later versions of the above documents.

10 CANCELLATION This Airworthiness Notice cancels Airworthiness Notice No. 43, Issue 2, dated 25 October 2002, which should be destroyed.

NOTE: Documents referenced in this Notice can be obtained from:
EUROCAE, 17 Rue Hamelin, 75783 Paris, France. Fax No. +33 (0) 145057230 Web site: www.eurocae.org
RTCA Inc. 1828 L Street NW, Suite 805, Washington DC. 20036 USA. Web site: www.rtca.org

AIRWORTHINESS NOTICE No. 43**Appendix 1***Issue 1**21 March 2005***FLS and DFLD Control, Tooling and Loading****1 PROCEDURES FOR THE CONTROL OF FLS AND DFLD**

The operator should consider providing the following for the control of FLS and DFLD

1.1 FLS and DFLD Register

A controlled FLS and DFLD register, which includes the following:

- (a) The version of the FLS and DFLD owned;
- (b) Which aircraft the FLS and DFLD are installed on;
- (c) The aircraft, systems and equipment that they are only applicable to;
- (d) The functions that the recorded FLS or DFLD performs;
- (e) Where it is stored (on or off aircraft location, including the storage media) and who has access to it;
- (f) Who can decide whether an upgrade is needed and then authorise that upgrade; and
- (g) A record of all replicated FLS/DFLD, traceable to the original source.

1.2 Storage Facility

An appropriate storage facility for the FLS and DFLD. While selecting an appropriate location, the following should be taken in to account:

- (a) Access to the location should be appropriately controlled.
- (b) The environmental conditions within the location should be appropriate for the storage of the FLS and DFLD media and provide protection against all forms of environmental contamination, including water, fire, heat and electrical or magnetic fields.
- (c) If the main source of the FLS and DFLD are an electronic store (e.g. a central database of software programs) that store should be:
 - (i) Subject to configuration control processes.

NOTE: ED-12B/DO-178B provides criteria for such a process by defining the configuration control process's objectives as:

 - Configuration items are identified.
 - Baselines and traceability are established.
 - Problem reporting, change control, change review, and configuration status accounting are established.
 - Archive, retrieval, and release are established.
 - Software load control is established.
 - Software life cycle environment control is established.
 - (ii) Appropriately isolated from the rest of the network to prevent unauthorised access or contamination from viruses. This isolation can be achieved using a series of access control functions and firewalls. However, protecting a networked system against viruses is a complex issue and consideration should be given to this store being separated from the network.
- (d) An appropriate number of backups should be maintained utilising standard software backup techniques.

1.3 FLS and DFLD Receipt Procedures

Specific procedures implemented for the receipt of FLS and DFLD that are transferred using electronic distribution techniques should give consideration to the following:

- (a) That the FLS or DFLD has come from an appropriate source and that sufficient configuration control processes are in place to ensure that the correct data and/or executable code will be supplied.
- (b) That they are accompanied by suitable release documentation.
- (c) That a record of purchase is created.
- (d) That suitable controls are in place to prevent use of FLS and DFLD that have become corrupted during its existence in any "open" environment, such as on the Internet.
- (e) That means are provided to allow detection of corruption.
- (f) That connecting a central electronic store for FLS and DFLD storage directly to the Internet is avoided wherever possible.

However, where this cannot be avoided, or if the FLS or DFLD are ported straight from the Internet to a central electronic store, a means to detect interference or corruption are provided.

1.4 **FLS and DFLD Loading Procedures**

Specific procedures implemented for the loading of FLS and DFLD, to target hardware, should consider the following:

- (a) The criteria identified within the FLS and DFLD control register, defined in paragraph 1.1 above.
- (b) The appropriate authority to embody FLS onto the aircraft (e.g. Aircraft Manufacturer's Service Bulletin) has been issued and received, i.e. Aircraft Manufacturer's SB or an STC.
NOTE: A vendor SB does not provide the authority to embody a different part number onto the aircraft.
- (c) The need for appropriate verification and recording of target hardware and FLS and certain DFLD part number changes:
 - (i) For airborne equipment having separate part numbers for hardware and FLS/DFLD the FLS/DFLD part numbers need not be displayed on the outside of the unit, as long as it can be verified through some kind of electronic query. When new FLS/DFLD is loaded into the unit, the same requirement applies and the approved FLS/DFLD part number should be verified before the unit is released for service. It should be noted, that in circumstances where only the top-level FLS/DFLD part number is displayed for an entire FLS/DFLD load, that affects several items of target hardware – such as might be found in IMA applications – the verification of this number would be necessary.
 - (ii) It is the aircraft operator's responsibility to ensure that the maintenance organisation has entered the FLS/DFLD identification in the aircraft maintenance records such that they can update the aircraft configuration information, such as an ACL.
 - (iii) If airborne equipment has only one part number, which represents a specific configuration of software and hardware, the unit identification on the nameplate should be changed if new software is loaded. In order for this to be embodied on the aircraft this should be accomplished in accordance with an Aircraft Manufacturer's Service Bulletin. The software part number stored in the target computer after data loading should be verified electronically and confirmed to be an approved configuration as detailed in the SB.
- (d) Verification that the upgrade actually is needed.
 - (i) If the system is working as required and the FLS or DFLD upgrade is not introducing a required solution or function addition or change, it is not always necessary to upgrade the FLS or DFLD simply for the sake of upgrading. Equally, it is possible that the upgrade could introduce problems that did not exist before.
 - (ii) It is also necessary to check any support agreements to ensure that customer support for the FLS or DFLD will remain valid.

- (e) Identify what has changed between the different versions of the FLS or DFLD. This should include identifying and recording within the FLS and DFLD register the problems that have been fixed and what functionality has been added or removed. (See paragraph 1.1 (d) of this appendix.)

2 CONTROL OF FLS OR DFLD TOOLING

2.1 FLS or DFLD can be loaded into the Target Hardware using a variety of tools as recommended and/or approved by the aircraft or target hardware manufacturer. These can include OEM supplied tools, Commercial Off The Shelf (COTS) tools or in-house developed tools.

2.1.1 There are a number of issues associated with FLS or DFLD tooling that the aircraft operator would need to take into account if an alternative to the tooling recommended by the aircraft or target hardware manufacturer was to be considered. Prior to seeking the aircraft or target hardware manufacturer's approval for any alternative tools' use, the aircraft operator should take the following items into account. These are associated with the general tool selection, and the control and the suitability of those tools.

2.2 General Tool Selection

The following general issues should be considered when making a FLS or DFLD tool selection:

- (a) What function is the tool required to perform:
 - (i) Is it simply loading, leaving other tools or processes to perform compatibility checks and validation tasks?
 - (ii) Is it loading and validating the final load, leaving initial compatibility checks to other tools or processes?
 - (iii) Is it providing all the tasks associated with loading (compatibility checks, loading and validation) and providing a diagnostic feature?
 - (iv) Any other combination of the above should be considered.
- (b) Is the tool (which could be a laptop) able to be suitably controlled?
- (c) Does the tool supplier have any previous experience in developing tools for the required purpose?
- (d) Will the tool supplier provide support and training?
- (e) Does the tool provide all the needed functionality or will additional tools or processes be needed?
- (f) Does the tool provide the necessary confirmation of what has been loaded on to the aircraft?
- (g) Do any existing tools that have CAA acceptance already provide the required functionality?
- (h) How much dependence will be placed on the tool?
 - (i) Will the tool supplier provide support for the tool for the duration of its use?
 - (j) Is the tool widely used in the industry and does it have a good reputation?
- (k) If the tool isn't widely used in the industry, is there any other way to establish its integrity?
 - (l) Will special training be required to use the tool?
- (m) Are there any human factors issues associated with its use?

2.3 Specific Tool Selection – Original Equipment Manufacturer (OEM) and Commercial Off The Shelf (COTS)

The issues detailed above apply to the selection of any tool, regardless of who supplies it. The issues detailed below are specific, additional, considerations that need to be considered for OEM and COTS Tools of software tools. If a tool is going to be supplied by the aircraft Type Certificate holder (STC holder) or the equipment manufacturer, or where COTS tooling is going to be supplied (COTS tools are considered to be those which were not supplied by the aircraft Type Certificate holder (or STC holder) or the equipment manufacturer, or developed by the airline/maintenance organisation) the following additional issues need to be considered:

- (a) Does the aircraft or target hardware manufacturer recommend it?
- (b) Is the tool needed for the FLS or DFLD and aircraft in question?
- (c) Was the tool actually developed for use with the FLS or DFLD and aircraft in question?
- (d) If the tool was not specifically developed with the FLS or DFLD and aircraft in question, is it compatible with them?
- (e) Is the tool likely to be compatible with the whole fleet?

2.4

Specific Tool Selection – In-house developed tools

If an aircraft operator is considering developing their own tools the following additional issues need to be considered:

- (a) The tool must be developed such that it cannot corrupt the functionality of the aircraft systems it is being used for.
- (b) The aircraft operator or their organisation must have a sufficient understanding of the internal aircraft system functionality to be sure of creating a tool that will work correctly.
- (c) The aircraft operator or their organisation must have personnel that are experienced in writing tools for aircraft maintenance functions and the associated human factors issues.
- (d) The tool should be developed in a suitably controlled fashion.
- (e) The operator should gain acceptance for the use of the tool from the aircraft or target hardware manufacturer.

2.5

Control and suitability of Tools

If tools are to be used by the aircraft operator, specific processes should be introduced to control their use. These processes should ensure that:

- (a) The control of tools including Portable Electronic Devices, such as laptop PCs should prevent the accidental or malicious transfer of viruses.
- (b) Portable Electronic Devices should be equipped with up-to-date virus protection software or virus scanned immediately before they are used to load FLS or DFLD on to an aircraft system's target hardware.
- (c) The ability of the tool to actually run the software that enables loading should be considered.
- (d) Access to the tools should be controlled and recorded.

AIRWORTHINESS NOTICE

No. 45
Issue 3
29 September 2006

**Implementation of the Railways and Transport Safety Act 2003 – Aviation:
Alcohol and Drugs****1 INTRODUCTION**

- 1.1 The information contained in this Airworthiness Notice has been developed in conjunction with the Department for Transport, the Home Office and the Police, and is consistent with the criteria contained in the Police Protocol. It is anticipated that this will facilitate a consistent approach by relevant parties.
- 1.2 The aim of this Airworthiness Notice is to inform Licensed Aircraft Maintenance Engineers of this new legislation and how it affects them in the performance of their duties.

2 LEGISLATIVE BACKGROUND

- 2.1 The effect of intoxication, through alcohol or drugs, on aviation personnel has significant safety implications. The Air Navigation Order (ANO), which is the main aviation safety regulatory legislation, provides that no member of an aircraft's crew, a licensed aircraft maintenance engineer or an air traffic control officer shall be under the influence of alcohol or drugs to such an extent as to impair his/her capacity to carry out their duties. The ANO, however, does not set a blood alcohol limit nor does it require a person who is suspected of an alcohol or drugs offence to be subjected to a test.
- 2.2 In 1996, the Government issued a Consultation Paper on alcohol and drug testing for aircraft crew and other safety critical civil aviation personnel, which proposed the introduction of a blood/alcohol limit for certain aviation personnel, together with corresponding Police powers of enforcement. Responses to the consultation were broadly supportive of the Government's approach. Part 5 of the Railways and Transport Safety Act 2003 www.legislation.hmso.gov.uk/acts/acts2003/20030020.htm represents the first suitable legislative opportunity to take forward these proposals and now brings aviation into line with other transport modes in seeking to tackle alcohol or drug misuse among key personnel. The Police testing and enforcement powers broadly mirror those currently applied on our roads and railways and are based on an officer's reasonable suspicion that an offence either has been, or is in the process of being, committed.
- 2.3 The blood/alcohol limit for aviation personnel is lower than that in shipping or on our roads or railways, but for pilots reflects the Joint Aviation Requirement on Commercial Air Transportation (JAR-OPS) - adopted by the Joint Aviation Authorities (JAA) in 1996 - which requires that crew members of commercial aircraft should not commence a flight duty period with a blood/alcohol level in excess of 20mg of alcohol per 100ml of blood. The adoption of this limit will go towards the harmonisation of standards across most of Europe.
- 2.4 Enforcement of the provisions of the Act is the responsibility of the Police and the Crown Prosecution Service. There is no provision for random testing.

3 IMPLEMENTATION

Part 5 of the Act was brought into force on 30 March 2004.

4 SUMMARY OF PART 5 OF THE RAILWAYS AND TRANSPORT SAFETY ACT 2003 AND COMMENTARY ON ENFORCEMENT

This Part extends to the flight and cabin crew of an aircraft, air traffic controllers and licensed aircraft maintenance engineers in the United Kingdom. It also applies to the crew of an aircraft registered in the United Kingdom wherever it may be in the world. An Explanatory Note may be found at www.legislation.hms.gov.uk/acts/en/03en20-b.htm.

5 OFFENCES - BEING UNFIT FOR DUTY (SECTION 92)

Section 92 makes it an offence to perform an aviation function or an ancillary activity whilst impaired through alcohol or drugs.

6 OFFENCES – PRESCRIBED LIMIT (SECTION 93)

6.1 This Section makes it an offence to perform or prepare to perform certain aviation-related functions with more than a prescribed level of alcohol in the body.

6.2 The prescribed blood/alcohol alcohol limits are 20 milligrammes of alcohol per 100 millilitres of blood for those activities carried out by aircrew and air traffic controllers, and 80 milligrams per 100 millilitres for licensed aircraft maintenance engineers. The different limits reflect the fact that although licensed aircraft maintenance engineers perform a safety critical role in aviation, they do not necessarily require the same speed of reaction as aircrew or air traffic controllers may need in an emergency situation.

The equivalent limits in respect of breath and of urine are also set out in this section.

6.3 Detailed limits are:

(a) When:

- acting as a pilot, cabin crew, flight engineer, flight navigator or flight radio-telephony operator of an aircraft during flight;
- attending the flight deck of an aircraft during flight to give or supervise training, to administer a test, to observe a period of practice or to monitor or record the gaining of experience; or
- acting as an air traffic controller in pursuance of a licence granted under or by virtue of an enactment (other than a licence granted to a student):

the prescribed limit of alcohol is:

- (i) In the case of breath: 9 microgrammes of alcohol in 100 millilitres.
- (ii) In the case of blood: 20 milligrammes of alcohol in 100 millilitres.
- (iii) In the case of urine: 27 milligrammes of alcohol in 100 millilitres.

(b) When acting as a licensed aircraft maintenance engineer the prescribed limit of alcohol in respect of the above is:

- (i) In the case of breath: 35 microgrammes of alcohol in 100 millilitres.
- (ii) In the case of blood: 80 milligrammes of alcohol in 100 millilitres.
- (iii) In the case of urine: 107 milligrammes of alcohol in 100 millilitres.

7 AVIATION FUNCTIONS (SECTION 94)

7.1 This section applies the offences of being either over the limit or unfit, to people preparing to carry out an aviation function or otherwise holding themselves ready to carry out one of those functions by virtue of being on duty or standby.

7.2 An activity shall be treated as an ancillary function if it is undertaken by a person commencing a period of duty in respect of the function, and as a requirement of, for the purpose of or in connection with the performance of the function during the period of duty. For example, the pre-flight briefing of the flight and cabin crew and any post-flight activity such as filing reports is considered to be an 'ancillary' function.

8 TESTING UNDER THE ACT

8.1 Preliminary test (i.e. a breathalyser test)

The Act provides that the power to require a person to co-operate with a preliminary test shall apply where:

- (a) a constable in uniform reasonably suspects that the person is over the prescribed limit,
- (b) a constable in uniform reasonably suspects that the person has been over the prescribed limit and still has alcohol or a drug in his body or is still under the influence of a drug,
- (c) an aircraft is involved in an accident and a constable reasonably suspects that the person was undertaking an aviation function, or an activity ancillary to an aviation function, in relation to the aircraft at the time of the accident, or
- (d) an aircraft is involved in an accident and a constable reasonably suspects that the person has undertaken an aviation function, or an activity ancillary to an aviation function, in relation to the aircraft.

8.2 A person who, without reasonable excuse, fails to provide a specimen when required to do so in pursuance of this section is guilty of an offence.

8.3 A person commits an offence under the Act if he/she performs an aviation function, or an activity that is ancillary to an aviation function, at a time when his/her ability to perform the function is impaired because of alcohol or drugs. This means that a person can be tested at any time after commencing duty, including standby.

8.4 The Police will determine when to test. As noted above this will in essence be when there are reasonable grounds for suspicion that someone is over the prescribed limit, or when an accident has occurred.

8.5 The Police are empowered to breathalyse and to perform subsequent tests (i.e. blood and urine tests). Police officers have been advised to exercise their powers under the Act as discreetly as circumstances allow and, if possible, in private, particularly where passenger aircraft are concerned. Overtly or insensitively exercising these powers in certain circumstances could have detrimental affect on passenger perception and confidence, and could have commercial implications and liabilities.

The preliminary drug test is dependent on factors not yet finalised.

8.6 Testing following an accident

An accident for these purposes is defined as an unintended event with adverse physical effect. It is unlikely that every accident involving an aircraft will warrant Police exercising any or all of their power under this Act.

9 REASONABLE GROUNDS FOR SUSPICION

9.1 Reasonable grounds for suspicion depend upon the circumstances in each case. There must be an objective basis for that suspicion based on facts, information and/or intelligence that are relevant to the likelihood of an offence. Reasonable suspicion cannot be based on generalisations or stereotypical images of certain groups or categories of people as more likely to be involved in criminal activity.

9.2 Reasonable suspicion can sometimes exist without specific information or intelligence and on the basis for some level of generalisation stemming from the behaviour of a person. Reasonable suspicion should normally be linked to accurate and current intelligence or information. For example, evidence of impairment from witnesses or from the result of a primary test of an employee by an employer could be sufficient.

10 PROCEDURE IN THE EVENT OF A POSITIVE BREATHALYSER TEST

10.1 If, as a result of an initial Police breath test, an officer has reasonable cause to suspect that a person has more than the prescribed proportion of alcohol in their body, then they can expect to be arrested and taken to a Police station. There, they will be asked to provide a further specimen of breath, blood or urine for laboratory analysis. In practice, this will

usually be a specimen of blood, taken by a Police doctor. Failure to provide a specimen without reasonable cause is an offence. Where a sample of blood or urine is taken, he/she will be entitled to request a part of the sample for themselves. He/she will be supplied with a booklet of analysts where they can have their specimen privately analysed if they wish.

10.2 Once a blood sample has been taken he/she will probably be released from the Police station on a condition to return at a later date, by which time the Police part of the sample will have been analysed. If the sample is under the limit he/she will probably be told not to attend. If, when he/she attends, the results of the analysis of the sample shows that he/she was over the limit, he/she will be charged with the offence and be given a date to attend court.

10.3 After giving a specimen, the Police may detain the individual at the Police station until it appears to the officer that there is no likelihood of them carrying out, or attempting to carry out, an aviation function of the kind for which they have provided a sample, whilst still over the prescribed limit or otherwise impaired through alcohol or drugs.

11 ADVICE TO ENGINEERS

This Airworthiness Notice should be read in conjunction with Airworthiness Notice No. 47, that contains further information on the Licensed Aircraft Maintenance Engineer's responsibilities when medically unfit or under the influence of alcohol or drugs.

12 PENALTIES AND ENFORCEMENT POWERS (SECTIONS 95, 97 AND 98)

12.1 Section 95: Penalty

The penalties set out in section 95 are set at the same level as those currently applying to aircrew and air traffic controllers under Article 148 of the ANO 2005 (as amended). This section will bring the penalty for licensed maintenance engineers under the influence of alcohol or drugs into line with them.

12.2 Arrest without a warrant (Section 97)

A constable may arrest a person without a warrant if the constable reasonably suspects that the person is committing an offence under Section 92 (being unfit for duty), or has committed an offence under that Section and is still under the influence of alcohol or drugs.

12.3 Right of entry (Section 98)

12.3.1 A Police constable in uniform may board an aircraft if he/she reasonably suspects that he/she may wish to exercise a power by virtue of Section 96 (power to administer tests, etc.) or under Section 97 (arrest without a warrant) in respect of a person who is or may be on the aircraft.

12.3.2 A Police constable in uniform may enter any place if he/she reasonably suspects that he/she may wish to exercise a power by virtue of Section 96 (power to administer tests, etc.) or under Section 97 (arrest without a warrant) in respect of a person who is or may be in that place.

12.3.3 For the purpose of boarding an aircraft or entering a place under this Section, a Police constable may use reasonable force or may be accompanied by one or more persons, e.g. airline personnel, additional Police constables, etc. Officers not used to working on airports or in aircraft and not trained to consider the relevant aspects of health and safety may wish to be accompanied by an agent of the airport or the operator as appropriate.

13 DISCLOSURE OF INFORMATION

13.1 In exercising their powers under this Act, the Police may acquire information that gives cause for serious concern that a person performing a safety critical aviation function is unsuited to hold that position of trust. This acquisition may occur even before their sample of blood or urine has been analysed or they have been charged, for example, where such a person has provided a positive preliminary test.

- 13.2 Such information may be passed to that person's employer or professional body on grounds of public safety or for the prevention or detection of crime. This will only be carried out with the authority of an officer of Assistant Chief of Police rank.
- 13.2.1 Any disclosure should provide only that information required to determine whether the offender should continue in their present role pending trial.
- 13.2.2 If authority to disclose is refused, Police should provide for the analysis of samples to be fast-tracked by the Forensic Science Service and for the offender to be charged, if appropriate, at the earliest opportunity.
- 13.3 In reality it is likely that if an individual is tested positive whilst on a duty, this will have an immediate impact on their ability to perform their function and will quickly come to the attention of the employer.

14 CAA PROTOCOL IN SUSPECTED ALCOHOL OR DRUG MISUSE

In cases where a licensed engineer may be misusing alcohol or drugs, a decision will be made whether there is alcohol or drug dependency that could be a risk to flight safety. If so, the licence may be suspended, or where the licence has been issued by another state, a recommendation to suspend will be sent to the issuing authority. If that is so, he/she will then be invited to take part in a treatment and rehabilitation schedule. If that is successful, the suspension will be lifted. For non-UK licence holders a recommendation will be sent to the issuing authority that a rehabilitation schedule was completed.

15 CANCELLATION

This Notice cancels Airworthiness Notice No. 45, Issue 2, dated 21 March 2005, which should be destroyed.

AIRWORTHINESS NOTICE

No. 46
Issue 24
29 September 2006

Aircraft Maintenance Engineers Licensing – General Licensing Information**1 GENERAL**

- 1.1 Dates and venues of written examinations are shown in Appendix 1 of this Notice which is correct at the time of publication. This and other detailed information on licensing are published on the Personnel Licensing area of the CAA web site www.srg.caa.co.uk. This site is updated frequently and engineers preparing to apply for exams or licence issue/extension are strongly advised to view it for current information on policy, procedures or exam schedules. Application forms may also be downloaded from the site.
- 1.2 Additional information relating to Part-66 and the cessation of BCAR Section L has been added to the Engineering Licensing part of the Personnel Licensing web site, including information on the 'fast-track' method of converting BCAR Section L licences to Part-66 for aircraft above and below 5700 kg.
- 1.3 The 'fast-track' method is designed to reduce the handling time of applications, enabling the Personnel Licensing Department to issue licences far quicker than by using the normal method. This allows engineers to convert their basic licence and type approvals issued by their current employer only, at a discounted issue fee.
- 1.4 With the UK CAA introduction of the Part-66 licence, the majority of BCAR Section L licenses require conversion by the following deadlines:
28 September 2006 for certification on aircraft above 5700 kg; and
28 September 2008 for certification on aircraft of 5700 kg and below.
For information on conversion visit www.caa.co.uk/srg/licensing and then click on engineer licensing and then 'making your application for Part-66'.
Existing JAR-66 licenses do not require conversion. **If you do not convert your BCAR Section L licence you will not be able to continue to issue a CRS after the dates above.**
- 1.5 Upon conversion of a BCAR licence to a Part-66 licence, where protected rights do not convert to a full Part-66 category or sub-category licence, limitations will be applied. Part-66 limitations may be removed by completing the appropriate conversion examinations, either before or after the conversion (refer to Section B of the ELGD on the Personnel Licensing part of the CAA website).

2 EASA COMMISSION REGULATION (EC) NO. 2042/2003 INCLUDING IMPLEMENTING RULES (IR) PART-66 AND PART-147

- 2.1 The European Aviation Safety Agency (EASA) has commenced operations introducing phased changes in respect of the licensing of aircraft maintenance engineers. An outline explanation of these changes can be found in Airworthiness Notice No. 7: Implementation of the European Parliament Regulation and Council of the European Union Regulations.
- 2.2 The UK CAA issued the first EASA Part-66 licence for aircraft above 5700 kg MTOM on 1 June 2004 and the first EASA Part-66 licence to include aircraft above and below 5700 kg MTOM on 29 November 2004.
- 2.3 The holder of a JAR-66 AML will be deemed to be compliant with this Part and certification privileges held under JAR-66 may continue to be exercised. Existing JAR-66 licences held

will be automatically converted to Part-66 licences at the next licensing event. It is not necessary for existing JAR-66 licence holders to convert their licence to Part-66.

- 2.4 Part 145.A.30 (g), Part 145.A.30 (h)(1) and Part 145.A.30 (h)(2) will be implemented by 28 September 2008. Line maintenance certifying staff on aircraft below 5700 kg MTOM, base maintenance certifying staff and B1, B2 support staff for multi engine helicopters at or below 5700 kg MTOM and base maintenance certifying staff and B1, B2 support staff for aircraft at or below 5700 kg MTOM are to be Part-66 qualified by this date.
- 2.5 An EASA Introduction Timetable is provided at Appendix 2, which provides information on cessation dates and compliance dates. Updates to this table will be made on our web site.
- 2.6 Maintenance certification for some aircraft categories e.g. annex II aircraft and airships will continue for the time being to be regulated by the UK CAA under National Requirements of BCAR Section L.
- NOTE:** Annex II and State aircraft are aircraft that are not included under EC Regulation 1592/2002 and therefore Part-145 and Part-M do not apply.
- 2.7 The UK CAA will no longer accept applications for BCAR Section L category D licences. Current licence holders in this category may continue to exercise their certification privileges until full implementation of Regulation (EC) No. 2042/2003 is applied subject to licence validity. After this date engine approval for maintenance certification in this category will be required to comply with Regulation (EC) No. 2042/2003 Annex I Part-M and Part-145 approved organisations.
- 2.8 New applications for BCAR Section L 'B' overhaul Aeroplanes or Rotorcraft will continue to be accepted and regulated by the UK CAA under national requirements. Please refer to CAP 468 for requirements.

3 DIESEL PISTON ENGINES

Regulation (EC) No. 2042/2003 Annex III, Part-66, Module 16, includes diesel engine technology in the syllabus. Whilst current BCAR Section L category C (piston engine) licence holders will not be required to pass a differences examination in these areas to convert to a Part-66 licence, in order to certify for diesel engines, a type training course on diesel technology piston engines must be completed to EASA Part-147 standard or by UK CAA direct course approval. Following this training an appropriate period of experience, typically 6 months, should be demonstrated on the engine type to qualify for the type rating addition. If recognized type training has not been completed on the specific engine type, a BCAR Section L category C (piston engine) licensed engineer will have to demonstrate an extended period of 12 months experience on the diesel engine type. In this case in order to qualify for this type addition, an oral examination may also be required.

4 BCAR SECTION L LICENCE RENEWAL

- 4.1 EASA Part-66 licences now include aircraft both above and below 5700 kg. The CAA, therefore, recommends that remaining BCAR Section L licence holders convert to Part-66 without delay, even if the licence is not due for renewal. The appropriate Form 19 (SRG1014) and Support Document (SRG/1020) can be downloaded from our web site.
- 4.2 Applicants may still renew their BCAR Section L licences where a need can be shown, e.g. for Annex II type aircraft ratings or airships.

5 THE ENGINEERS LICENSING GUIDANCE DOCUMENT

- 5.1 The latest version of this document (ELGD 2006) and all applicable updates are available on our website www.caa.co.uk/srg/licensing, 'Engineering Licensing', 'ELGD'.
- 5.2 The ELGD was designed to assist Aircraft Maintenance Engineers and those involved with aircraft maintenance engineering by providing guidance on existing Aircraft Maintenance Engineering licensing requirements.

6 ASSESSOR TRAINING WORKSHOPS

- 6.1 The workshop is designed for assessors, referees and quality personnel, primarily to provide first-hand guidance in their role of supporting aircraft maintenance engineers making application for licence issue and/or type ratings.
- 6.2 These individuals may be working within approved maintenance organisations, being employed by, or in the case of the assessor nominated by, their organisation. Assessors working independently within industry are directly approved by the UK CAA as logbook assessors by submitting CAA Form SRG/1016.
- 6.3 Depending on the individual's role within industry, their responsibilities could include assisting engineers to complete their logbooks, conducting practical experience assessment following type training, or completion of application forms for both initial licence issue and/or type ratings.
- 6.4 The training provides focused guidance for those individuals involved in the majority of activities associated with licence applications, including the logbook validator, logbook assessor and quality personnel, either new to the role of supporting applications for a Part-66 licence or personnel requiring refreshment.
- 6.5 The training covers:
- Part-66 licensing requirements;
 - BCAR Section L and Part-66/-145/-147 interface issues;
 - The AME's Logbook;
 - Practical experience assessment criteria;
 - Application forms including supporting documentation;
 - Protected Rights;
 - Type ratings and removal of limitations.

7 EXAMINATION VENUES AND DATES A list of written examination dates and venues is given in Appendix 1 to this Notice.

8 CANCELLATION This Notice cancels Airworthiness Notice No. 46 Issue 23 dated 29 March 2006 which should be destroyed.

Relevant information from previous Notices may be filtered into the next issue of Engineers Licensing Guidance Document.

AIRWORTHINESS NOTICE No. 46**Appendix 1***Issue 14**29 September 2006***Engineer Licensing Examination Dates for 2007**

All Engineer Licensing written examinations are held at the main Personnel Licensing Department examination venues at Gatwick, Glasgow, Oxford, Silsoe and Britannia Airport Hotel, Manchester. The venues can seat, in total, a minimum of 250 candidates per month. Venue details will be sent with each examination confirmation.

Arrangements for oral examinations remain unchanged and are conducted at the Regional Offices.

Gatwick	Oxford	Glasgow	Silsoe	Britannia Hotel, Manchester
12 Jan 07	12 Jan 07	12 Jan 07	12 Jan 07	12 Jan 07
9 Feb 07	9 Feb 07	9 Feb 07	9 Feb 07	9 Feb 07
9 Mar 07	9 Mar 07	9 Mar 07	9 Mar 07	9 Mar 07
30 Mar 07	30 Mar 07	30 Mar 07	30 Mar 07	30 Mar 07
4 May 07	4 May 07	4 May 07	4 May 07	4 May 07
8 Jun 07	8 Jun 07	8 Jun 07	8 Jun 07	8 Jun 07
6 Jul 07	6 Jul 07	6 Jul 07	6 Jul 07	6 Jul 07
10 Aug 07	10 Aug 07	10 Aug 07	10 Aug 07	10 Aug 07
7 Sep 07	7 Sep 07	7 Sep 07	7 Sep 07	7 Sep 07
5 Oct 07	5 Oct 07	5 Oct 07	5 Oct 07	5 Oct 07
9 Nov 07	9 Nov 07	9 Nov 07	9 Nov 07	9 Nov 07
7 Dec 07	7 Dec 07	7 Dec 07	7 Dec 07	7 Dec 07

Please note that published examination dates may be subject to alteration or cancellation.

The time between the closing date for applications and the examination sitting is two weeks. Personnel Licensing Department will aim to send booking confirmations, venue details and examination timetables to reach candidates within 2 days of the booking and in any case at least 1 week prior to the sitting.

AIRWORTHINESS NOTICE No. 46**Appendix 2***Issue 3**29 September 2006***EASA Introduction Timetable**

Date	Item	Reference
28 Sept 03	European Aviation Safety Agency (EASA) into force.	EC 1592/2002
28 Sept 03	New applications for JAR-147 approval to be issued in accordance with Part 147.	Annex IV (Part 147)
28 Nov 03	Implementing Rules released. EC 2024/2003 enters into force.	Annex I, II, III, IV
01 June 04	No new applications for D licences accepted.	
	BCAR licence renewal validity to change from 5 years to 2 years.	
	Part 66 licences for aircraft above 5700kg.	Annex III (Part 66)
	Part 66 exams available.	
01 Sept 04	JAR-66 licences renewed as Part 66 licences.	
01 Nov 04	Final date to enter for BCAR Section L exams for new applicants.	
29 Nov 04	Start issuing Part 66 licences for aircraft below 5700kg. Existing JAR-147 training organisations to have converted to Part 147.	Annex IV (Part 147)
01 Nov 05	BCAR written exams withdrawn.	
01 May 06	BCAR oral exams withdrawn.	
28 Sept 06	All certifying staff for aircraft above 5700 kg must hold a Part 66 licence to continue certifying.	Annex II (Part 145)
28 Sept 08	All certifying staff must hold Part 66 licences.	Annex I (Part-M) Annex II (Part-145)

Please note that these dates are subject to change. Any changes will be promulgated via our web site.

AIRWORTHINESS NOTICE

No. 47
Issue 8
29 September 2006

Licensed Aircraft Maintenance Engineers – Personal Responsibility When Medically Unfit or Under the Influence of Drink or Drugs**1 INTRODUCTION**

1.1 The International Civil Aviation Organisation (ICAO) has introduced an amendment to Annex 1 to the convention on international civil aviation which will have the effect of extending certain standards and recommended practices to all licence holders. The changes resulting from the amendment are concerned with medical fitness and the use or abuse of intoxicating liquor, narcotics or drugs.

1.2 To implement these changes the Air Navigation No. 2 Order 1995 (ANO) introduced two new Articles. Article 13(7) (now Article 18(7) of the Air Navigation Order 2005, as amended) which prohibits the exercise of the privileges of an aircraft maintenance engineer's licence when the holder knows or suspects that their physical or mental condition renders them unfit to exercise such privileges, and Article 13(8) (now Article 18(8) of the Air Navigation Order 2005, as amended) which prohibits the exercise of licence privileges when the holder is under the influence of drink and/or drugs to such an extent as to impair their capacity to exercise such privileges.

1.3 The Commission Regulation (EC) 2042/2003 (The Continuing Airworthiness Regulation) entered into force on 29 November 2003 and introduced new requirements applicable to licensed aircraft engineers in the U.K.

Annex III Part-66.B.500 to the Continuing Airworthiness Regulation requires a competent authority to suspend, limit or revoke an aircraft maintenance licence in all cases where it has clear evidence that the license holder has carried out maintenance or issued a certificate of release to service when adversely affected by alcohol or drugs.

2 GENERAL

2.1 An aircraft maintenance engineer's licence authorises the holder, subject to any conditions that may be specified on the licence, to issue various certificates relating to aircraft maintenance. The process of issuing these certificates (Certificates of Maintenance Review, Certificates of Release to Service and Certificates of Fitness for Flight under the 'A' Conditions Flight Release Certificate) and similar certificates for those aircraft detailed within Annex II of Commission Regulation (EC) 1592/2002 require clear decisions to be made that directly affect the airworthiness of the aircraft to which they relate. It follows that the quality of these decisions is directly influenced by the physical and mental state of the certifier at the time of certification, and whether or not they are subject to the adverse effects of drink and/or drugs.

2.2 The corporate management of all approved maintenance organisations are required to review this Airworthiness Notice and implement suitable policies and procedures to make all maintenance staff aware of them. The requirements of Articles 18(7) and 18(8) of the Air Navigation Order (2005) as amended, in addition to an understanding of the requirements placed upon the UK CAA within Part 66.B.500, fall on those who certify the completion of maintenance. The guidance material contained in this Airworthiness Notice is equally applicable to all non-licensed personnel engaged in aircraft maintenance tasks and in principle should be adopted throughout the aviation industry as a code of practice.

Organisations shall also take note of items in paragraph 3 which require their participation in the areas concerned.

- 2.3 All persons to whom this notice applies should be aware of the guidance material contained herein. It is the responsibility of the individual concerned to ensure that they do not report for duty or certify if they are genuinely unfit. Such persons should also be aware of an organisation's own internal policies and monitoring procedures to verify the above.

3 GUIDANCE

- 3.1 **Fitness** In most professions there is a duty of care by the individual to assess their own fitness to carry out professional duties. This has been a legal requirement for some time for doctors, flight crew members and air traffic controllers. Licensed aircraft maintenance engineers are also now required by law to take a similar professional attitude.

Cases of subtle physical or mental illness may not always be apparent to the individual but as engineers often work as a member of a team any sub-standard performance or unusual behaviour should be quickly noticed by colleagues or supervisors who should notify management so that appropriate support and counselling action can be taken. In particular, a decrease in mental fitness in many cases may be related to stress from within the working environment or to the personal circumstances of the individual. Instances of aggressive behaviour, vagueness and slippage of personal standards (cleanliness, appearance etc.) may be indicative of more serious mental issues. Such issues may bring into question the ability of the individual to be trusted or to maintain the necessary levels of concentration to take appropriate decisions on airworthiness matters.

- 3.2 **Fatigue** Tiredness and fatigue can adversely affect performance. Excessive hours of duty and shift working, particularly with multiple shift periods or additional overtime, can lead to problems. Whilst the safety management aspects of these matters are being addressed through the UK Operators Technical Group individuals should be fully aware of the dangers of impaired performance due to these factors and of their personal responsibilities.

- 3.3 **Stress** Everyone is subject to various stresses in their life and work. Stress can often be stimulating and beneficial but prolonged exposure to chronic stress (high levels or differing stress factors) can produce strain and cause performance to suffer allowing mistakes to occur.

Stress factors can be varied, physical – e.g. heat, cold, humidity, noise, vibration; they can be due to ill-health or worries about possible ill-health; from problems outside the workplace – e.g. bereavements, domestic upsets, financial or legal difficulties. A stress problem can manifest itself by signs of irritability, forgetfulness, sickness absence, mistakes, or alcohol or drug abuse. Management have a duty to identify individuals who may be suffering from stress and to minimise workplace stresses. Individual cases can be helped by sympathetic and skilful counselling which allows a return to effective work and licensed duties.

- 3.4 **Eyesight** A reasonable standard of eyesight is needed for any aircraft engineer to perform their duties to an acceptable degree. Many maintenance tasks require a combination of both distance and near vision. In particular, such consideration must be made where there is a need for the close visual inspection of structures or work related to small or miniature components. The use of glasses or contact lenses to correct any vision problems is perfectly acceptable and indeed they must be worn as prescribed. Frequent checks should be made to ensure the continued adequacy of any glasses or contact lenses. In addition, colour discrimination may be necessary for an individual to drive in areas where aircraft manoeuvre or where colour coding is used, e.g. in aircraft wiring. Organisations should identify any specific eyesight requirement and put in place suitable procedures to address these issues.

- 3.5 **Hearing** The ability to hear an average conversational voice in a quiet room at a distance of 2 metres (6 feet) from the examiner is recommended as a routine test. Failure of this test would require an audiogram to be carried out to provide an objective assessment. If necessary, a hearing aid may be worn but consideration should be given to the practicalities of wearing the aid during routine tasks demanded of the individual.

It is important to remind employers of individuals working in areas of high ambient noise of the requirement of the Noise at Work Regulations 1989 which require employers to carry out assessments of noise levels within their premises and take appropriate action where necessary.

3.6 **Drug and Alcohol Abuse** Drinking problems or the use of illicit or non-prescribed drugs are unacceptable where aircraft maintenance safety is concerned and once identified will lead to suspension of the licence or company authorisation and possibly further licensing action being considered. The introduction of the Railways and Transportation Safety Act 2003 set a blood alcohol limit of 80 mg/100 ml for personnel involved in aircraft maintenance. Airworthiness Notice No. 45 describes the implications of this act and should be referred to for further guidance.

3.7 **Medication** Any form of medication, whether prescribed by a doctor or purchased over the counter and particularly if being taken for the first time, may have serious consequences in the aviation maintenance environment unless three basic questions can be answered satisfactorily:

- (a) Must I take medicines at all?
- (b) Have I given this particular medication a personal trial for at least 24 hours before going on duty, to ensure that it will not have adverse effects on my ability to work and make sound decisions?
- (c) Do I really feel fit for work?

Confirming the absence of adverse effects may need expert advice and General Practitioners, Company Medical Officers and the Medical Division of the Civil Aviation Authority are all available to assist in this matter. Common types of medication in use and their effects are further described in Appendix 1.

3.8 **Alcohol** Alcohol has similar effects to tranquillisers and sleeping tablets and may remain circulating in the blood for a considerable time, especially if taken with food. It should be borne in mind that a person may not be fit to go on duty even eight hours after drinking large amounts of alcohol. Individuals should therefore anticipate such effects upon their next duty period. Special note should be taken of the fact that combinations of alcohol and sleeping tablets, or anti-histamines, can form a highly dangerous or even lethal combination.

3.9 **Anaesthetics** It should be remembered that following local, general, dental and other anaesthetics, a period of time should elapse before returning to duty. This period will vary depending upon individual circumstances, but may even extend to 24 or 48 hours. Any doubts should be resolved by seeking appropriate medical advice.

4 SUMMARY

4.1 The effects of illness, injury or medication on work performance are the direct concern of the individual. Where there is doubt about the ability of an individual to make sound technical decisions, the implications of Article 18(7) and 18(8) of the Air Navigation Order (2005) as amended or Part 66.B.500 must be taken into account, i.e. the individual must not exercise the privileges of their licence or authorisation whilst unfit. While this notice gives some guidance on the issues to be considered it cannot be comprehensive. If individual licence holders or their managers have any doubt they should consult the medical sources mentioned for advice. If there is difficulty in obtaining this advice, the local CAA regional office or the CAA Personnel Licensing Department should be contacted in the first instance and they in turn may seek guidance from the CAA Medical Department. The contact details of the CAA regional offices are provided in Airworthiness Notice No. 29.

5 CANCELLATION

This Notice cancels Airworthiness Notice No. 47 Issue 7 dated 28 September 2005 which should be destroyed.

AIRWORTHINESS NOTICE No. 47**Appendix 1***Issue 2**25 October 2002*

- 1** The following are some of the types of medicine in common use which may impair work performance. This list is not exhaustive and care should be taken in ensuring the likely effects of any prescribed drug are adequately known before taking it.
- (a) Sleeping Tablets – These dull the senses, cause mental confusion and slow reaction times. The duration of effect is variable from person to person and may be unduly prolonged. Individuals should have expert medical advice before using them;
 - (b) Anti-depressants – These can depress the alerting system and have been a contributory cause of mistakes leading to fatal accidents. A person should stop work when starting anti-depressants and only return when it is clear that there are no untoward side-effects. It is recommended that individuals seek medical advice from their General Practitioner or appropriate medical specialist before returning to work;
 - (c) Antibiotics – Antibiotics (penicillin and the various mycins and cyclines) and sulpha drugs may have short term or delayed effects which affect work performance. Their use indicates that a fairly severe infection may well be present and apart from the effects of these substances themselves, the side-effects of the infection will almost always render an individual unfit for work;
 - (d) Anti-histamine – Such drugs are widely used in cold cures and in the treatment of hay fever, asthma and allergic skin conditions. Many easily obtainable nasal spray and drop preparations contain anti-histamines. Most of this group of medicines tend to make the taker feel drowsy. Their effect, combined with that of the condition, will often prevent the basic three questions (paragraph 3.7 of the Notice) from being answered satisfactorily. Admittedly very mild states of hay fever etc., may be adequately controlled by small doses of anti-allergic drugs, but a trial period to establish the absence of side effects is essential before going on duty. When individuals are affected by allergic conditions which require more than the absolute minimum of treatment and in all cases of asthma, one of the above mentioned sources of advice should be consulted;
 - (e) ‘Pep’ pills (e.g. containing Caffeine, Dexedrine, Benzedrine) used to maintain wakefulness are often habit forming. Susceptibility to each drug varies from one individual to another, but all of them can create dangerous over-confidence. Over-dosage may cause headaches, dizziness and mental disturbances. The use of ‘pep’ pills whilst working cannot be permitted. If coffee is insufficient, you are not fit for work;
 - (f) Drugs for the relief of high blood pressure are proving to be very effective in controlling this condition. However, antihypertensive agents all have some side effects and should not be administered before adequate assessment of the need for treatment. The prescribing practitioner should be able to advise on any side effects to be considered;
 - (g) Drugs when prescribed for Anti-malaria in normally recommended doses do not usually have any adverse effects. However, the drug should be taken in good time so that the question in paragraph 3.7 (b) of the Notice can be answered;
 - (h) Oral contraceptive tablets in the standard dose do not usually have adverse effects, although regular supervision is required;
 - (i) ‘SUDAFED’ is the trade name of a preparation containing pseudo-ephedrine hydrochloride. This may be prescribed by GPs for relief of nasal congestion. Side-effects reported however are anxiety, tremor, rapid pulse and headache. The preparation does not contain anti-histamines which could sedate and cause drowsiness but the effects can nevertheless affect skilled performance. Sudafed, therefore, is not a preparation to be taken when making engineering decisions or performing licenced duties.

NOTE: Although the above are common groups of drugs, which may have adverse effects on performance, it should be pointed out that many forms of medication, which although not usually expected to affect efficiency may do so if the person concerned is unduly sensitive to a particular drug. Therefore no drugs, medicines, or combinations, should be taken before or during duty unless the taker is completely familiar with the effects on him or her of the medication and the drugs or medicines have specifically been prescribed for the individual alone. Again the sources of advice mentioned earlier in this notice should be consulted in cases of doubt.

AIRWORTHINESS NOTICE**No. 48
Issue 4
29 September 2006****Check Flights for Continuing Airworthiness Management****1 INTRODUCTION**

- 1.1 The purpose of this Airworthiness Notice (AN) is to advise owners, operators and organisations involved in the management of airworthiness of UK registered aircraft of the implementation of current CAA policy for flight-testing as described in Letter to Operators (LTO) 2839. This AN provides amplification, details references, and gives guidance on the safe conduct of an aircraft evaluation flight, on the occasions when one is required by EASA or CAA, or when owners or operators elect to perform one as part of their continuing airworthiness programmes.
- 1.2 Regulations (EC) 1702/2003, incorporating Part-21, and 2042/2003, incorporating Part-M, have introduced a new regulatory system, incorporating additional requirements, for the control and oversight of the continuing airworthiness of all aircraft on the UK Register subject to these Regulations. Copies of these Regulations are available at the European Aviation Safety Agency (EASA) website: www.easa.europa.eu.
- 1.3 For the purpose of this AN applicable EC Regulations will be referred to as the EASA Regulations and aircraft subject to these Regulations will be referred to as EASA aircraft.

2 GENERAL**2.1 Background**

- 2.1.1 Flight testing of aircraft is a required means of establishing compliance with certification requirements for new aircraft and changes to aircraft. Other flight testing, referred to as check flights or in-flight surveys, can be carried out periodically on in-service aircraft as one of the processes to ensure that an aircraft continues to comply with the applicable airworthiness requirements. Additionally, maintenance check flights may be carried out following a maintenance activity on an aircraft to provide reassurance of performance or establish the correct functioning of a system that cannot be fully established during ground testing.
- 2.1.2 Although Part 21 continues to make reference to the term flight testing, Part M refers to "check flights" and "in-flight surveys". In general, therefore, the term "flight testing" will be used when discussing pre-certification actions; "check flight" will refer to required or elective verification activities that take place post type certification, such as for the issue of a C of A or post maintenance; "in-flight surveys" are another form of check flight.
- 2.1.3 Prior to the implementation of the EASA Regulations, the CAA flight testing regime for all aircraft was published in British Civil Airworthiness Requirements (BCARs). These requirements provided information on flight testing for the following purposes:
- Flight Testing for Type Certification (A2-3, A8-9)
 - Flight Testing for Issue of Certificate of Airworthiness or a Permit to Fly (A3-3)
 - Flight Testing for Renewal of Certificate of Airworthiness or a Permit to Fly (A3-5)
 - Flight Testing after Modification or Repair (A6-8, A8-9)

It should be noted that these BCARs remain applicable to non-EASA aircraft (which are defined in Annex II to EC Regulation 1592/2002) (see paragraph 5).

2.2 **Changes Resulting from the EASA Regulations**

2.2.1 EASA has now assumed certain responsibilities for type certification and continuing airworthiness. The UK requirements detailed above will no longer apply to aircraft subject to Article 4, paragraph 1 of EC Regulation 1592/2002. These EASA Regulations will not be fully in force until 28 September 2008. However, this AN anticipates the measures that need to be in place by that date and identifies when a flight test or check flight is necessary, according to the respective parts of the EASA Regulations, Part 21 for certification related flights, and Part M for flights relating to continuing airworthiness.

2.2.2 The EASA Regulations, when fully implemented, will introduce a non-expiring certificate of airworthiness, which is underpinned by a prescriptive continuing airworthiness management system. Owners or operators of aircraft are responsible for ensuring the continuing airworthiness of their aircraft; Part M M.A.201 refers. These responsibilities require owners or operators, or their contracted organisations under Part M Subpart G, to analyse the airworthiness status of the aircraft, including reported flight defects and performance issues.

2.2.3 Owners or operators, who establish a need to carry out periodic check flights as part of their own airworthiness assurance process, or are required for commercial reasons to do so, should ensure that their check flight schedules and procedures are developed in accordance with current best practices. They may achieve this by consulting with the aircraft manufacturer or with CAA Flight Department for advice on content and safety procedures. However, EASA aircraft are no longer subject to the systematic programme of continuing airworthiness flight test (CAFT), previously carried out at the time of C of A renewal or to an agreed flight test sampling programme, required under BCAR A/B 3-5.

NOTE: Please see the section "Use of Schedules" on the Flight Testing page of the Safety Regulation page of the CAA website.

2.2.4 The EASA Regulations also place obligations upon CAA, as the designated competent authority for the UK, in respect of aircraft continuing airworthiness monitoring; Part M M.B.303 refers. This requires the CAA to develop a survey programme to monitor the airworthiness status of the fleet of aircraft on its register. This survey programme can include, as one element, in-flight surveys. At present, EASA has published no guidance material, beyond that included in Part-M, to define the scope of in-flight surveys. Any future introduction by the CAA, as a competent authority, of in-flight surveys will be dependent on European developments.

2.2.5 Aircraft that are engaged in military, customs, police or similar services are considered to be "State Aircraft" and as such are not subject to EASA Regulations. However, those State Aircraft which are of a type issued with an EASA type certificate are treated as EASA aircraft. Further information on this subject is to be found in AN No. 13. The policy of paragraph 4 of this AN will normally apply when the aircraft is subject to the continuing airworthiness controls specified in Part M.

3 **CHECK FLIGHTS FOR CONTINUING AIRWORTHINESS MANAGEMENT**

3.1 **Background**

3.1.1 The ICAO Airworthiness Manual, Volume 1, advises that the purpose of airworthiness check flights is to ensure that the aircraft's flight characteristics and its functioning in flight do not differ significantly from the normal characteristics for the type and to check the flight performance against the appropriate sections of the flight manual. It also states that these flights should be conducted in accordance with schedules that are approved by the State's competent authority.

3.1.2 The principles and safety considerations that follow are applicable for both required and elective check flights for continuing airworthiness management. These check flights do not include maintenance check flights for specific items.

3.2 **Check Flight Schedules**

3.2.1 Check flights flown in accordance with appropriate schedules will establish that:

- (a) the handling characteristics are satisfactory and typical of the type;
- (b) the climb performance equals or exceeds the scheduled data;

NOTE: Data is necessary in order to assess any future deterioration of performance in service.

- (c) the aircraft and its equipment function satisfactorily and the aircraft continues to comply with its type design standard.

3.2.2 To be appropriate, the schedules require the pilot to carry out:

- (a) Handling tests, including the effectiveness of primary controls and trimmers, with specific direction (see Note) to evaluate the characteristics during the following phases of flight:

- (i) Take-off;
- (ii) Climb;
- (iii) Cruise;
- (iv) Flight at maximum speed;
- (v) Flight at minimum speed;
- (vi) Descent;
- (vii) Landing; and
- (viii) Hover manoeuvres for helicopters.

NOTE: If not directed to evaluate characteristics, many pilots would compensate and adapt to deficient characteristics.

- (b) Performance tests:

- (i) Simple, free air pressure rate-of-climb measurements under known and predicted configurations and conditions; and
- (ii) Measurement of low speed warnings and, if applicable, stall speeds.

- (c) Tests to check functioning of the aircraft equipment in flight and safe, recoverable functioning of back-up systems, e.g. emergency gear lowering, use of alternate braking systems. Note that controls, systems and equipment which are used regularly may be considered, for the purpose of the schedule, to have been checked on the basis of normal usage.

3.2.3 Check Flight Schedules which meet the above criteria will be created and maintained by CAA (in conjunction with the aircraft manufacturer) where required for check flights for EASA and non-EASA aircraft. Should an operator wish to develop an alternative schedule for required check flights, this may be done provided that it incorporates all elements of the CAA schedule and, in particular, the Check Flight Certificate. Examples may be found in the CAA guidance material for the conduct of check flights, namely the CAA Check Flight Handbook¹. Any alternative schedule, when used for required check flights, should have been reviewed and accepted by the CAA Flight Department; in seeking any such agreement, the operator should include details of arrangements for periodic review of his schedules.

3.2.4 Schedules are available for most aircraft types (and variants thereof) above 5700 kg. However, for certain categories of aeroplanes below 5700 kg, the CAA has produced generic schedules, which can be used for a range of aeroplane types. These can be obtained from CAA Flight Department at the address in paragraph 6 or from the Flight Testing page of the CAA website.

1. CAA Check Flight Handbook – Recommended Techniques and Procedures for the Conduct of Check Flights. Available from the Flight Testing Page of the CAA website.

3.3 **Check Flight Results**

After each check flight, the pilot who conducted the flight should complete the post-flight certificate, which lists all the defects found during the flight, as detailed in the Check Flight Handbook. This, together with the completed Schedule, comprises the Check Flight Report.

3.4 **Pilots Conducting Check Flights**

3.4.1 To ensure that appropriate levels of safety are maintained, check flights should be conducted by pilots who have satisfactory experience with the appropriate check flight schedule, and have received adequate familiarisation of check flight techniques and safety precautions. For both required and elective check flights, it is necessary that the pilot concerned fully understands the significance and intent of the tests, as well as the techniques used to minimise the risk associated with some tests. For required check flights, CAA Flight Department must be consulted in advance regarding the eligibility of pilots intending to conduct such flights.

3.4.2 Pilot acceptance criteria and procedures for conducting check flights should be included in the continuing airworthiness management exposition in accordance with Part M.A.704 where applicable. Though it is not feasible to lay down absolute experience and ability requirements for pilots, guidelines are provided in the CAA Check Flight Handbook.

4 **IMPLEMENTATION: EASA AIRCRAFT**

4.1 **Certificate of Airworthiness issue – New aircraft**

As part of a production assurance programme, the manufacturer is required to determine conformity for each individual aircraft prior to the issue of the statement of conformity (EASA Form 52)/Export C of A. No check flight is required by the competent authority for C of A issue.

4.2 **Certificate of Airworthiness issue – Used aircraft from an EU Member State (or a State having a membership agreement with EASA)**

The EASA Regulations are legally binding in each Member State and facilitate equal recognition of certificates issued in any Member State. When an aircraft with a valid C of A issued by an EU Member State (or a State having a membership agreement with EASA) transfers to the UK Register, no check flight by the competent authority is required for C of A issue.

4.3 **Certificate of Airworthiness issue – Used aircraft from a non-EU Member State, not having a membership agreement with EASA**

4.3.1 For a C of A to be issued to a used imported aircraft from a non-EU Member State, not having a membership agreement with EASA, it is necessary to determine that the individual aircraft conforms to its type certification standard and is airworthy. In order to establish this, Part 21 requires a check flight to be conducted in accordance with Part M prior to C of A issue. Part M.A.904 and AMC M.A.904 refers.

4.3.2 **Application**

On receipt of an application for the issue of a C of A, the applicant will be notified by letter of the need for a check flight and he will be asked to contact the CAA Flight Department, at the address given in paragraph 6, to agree the particular check flight requirements for his aircraft. The C of A will not be issued until the check flight has been completed and the results satisfactorily dealt with (see paragraph 3.3).

NOTE: A number of owner or operators lease out aircraft at seasonal periods to reduce capacity. In certain cases the aircraft are transferred from the UK register to the register of a non-EU State not having a membership agreement with EASA. In these cases when the aircraft return to the UK register within 12 months and the owner or operator has arrangements in place to monitor the continuing airworthiness arrangements with the lessee a check flight will not normally be required on return.

- 4.4 **Certificate of Airworthiness issue – Export C of A from UK to a third country**
EASA regulations do not make provisions for the issue of an Export C of A. When the EASA Regulations are fully implemented there will be no need for an Export C of A in respect of aircraft that transfer registration to another EU Member State (or a State having a membership agreement with EASA). CAA will continue to accept applications for the issue of an Export C of A for aircraft to be exported to non-EU Member States not having a membership agreement with EASA. For the present, the general provisions of BCAR Chapter A3-6 “Certificates of Airworthiness for Export” will apply with the exception that no check flight will be required unless specified by the importing State.
- 4.5 **Revalidating a Certificate of Airworthiness**
- 4.5.1 A Certificate of Airworthiness will become invalid if an aircraft has not been maintained in an airworthy condition. Aircraft that have been in storage, or out of service, for a prolonged period of time will have not been subject to the periodic continuing airworthiness requirements and will need their airworthiness status to be re-established prior to entry into service. Where necessary, return to service check flights should form part of the Airworthiness Review Certificate (ARC) recommendation procedures to provide an additional assurance of serviceability. Continuing airworthiness management organisations should include procedures for this in their exposition.
- 4.5.2 Prior to 28 September 2008, during the transition period to full implementation of EASA Regulations, if a C of A for an individual aircraft has expired for a period longer than one year, then the renewal of the C of A is considered as a subsequent issue with CAA involvement. As the aircraft has not been subject to continuing airworthiness controls and processes during this period, a check flight will be required to demonstrate conformity.
- 4.6 **Maintenance Check Flights**
- 4.6.1 The EASA Regulations in M.A.301 (8) identify maintenance check flights as part of the continuing airworthiness tasks necessary to ensure the serviceability of operational and emergency equipment. For some maintenance tasks, the manufacturer prescribes in the aircraft’s Maintenance Manual the need for check flights to be carried out. For other tasks involving, for example, work carried out on a system or component the correct functioning of which is affected by flight dynamics, air loads, airflows, or low temperatures and pressures, the certifying engineer will need to determine if a maintenance check flight is required to verify its operation.
- 4.7 The suitability of pilots conducting maintenance check flights and appropriate safety precautions must be addressed.
- 5 IMPLEMENTATION: NON-EASA AIRCRAFT**
- 5.1 **Introduction**
British Civil Airworthiness Requirements (BCARs) continue to be applicable to non-EASA aircraft. For a C of A (or Permit to Fly) to be issued to a non-EASA aircraft it is necessary for the CAA to determine that the individual aircraft conforms to its type certification standard and is airworthy. To establish this, a check flight is required to be completed satisfactorily prior to the issue or renewal of the C of A or Permit to Fly.
- 5.2 **Application**
On receipt of an application for the issue or renewal of a C of A or Permit To Fly, the applicant will be notified by letter of the need for a check flight and he will be asked to contact the CAA Flight Department, at the address given in paragraph 6, to agree the particular check flight requirements for his aircraft. The C of A or Permit to Fly will not be issued until the check flight has been completed and the results dealt with satisfactorily (see paragraph 3.3).
- 5.3 **Issue of Certificate of Airworthiness (or Permit to Fly)**
The check flights will be conducted in accordance with a CAA Check Flight Schedule as detailed in paragraph 3.2 and either (a) or (b) below, as appropriate:

- (a) New Aircraft. The check flight shall be conducted under the supervision of the aircraft Type Design Organisation if applicable.
- (b) Imported or Re-imported Aircraft. Where the aircraft type and origin are well known to the CAA, the check flight may be devolved to the applicant (or importing agents or operators), provided that the pilot has been associated previously with CAA check flights on aircraft of the same, or closely similar, type. However, the CAA retains overall responsibility and may notify the applicant of its intention to carry out, or participate in, check flights.

5.4 **Renewal of a Certificate of Airworthiness (or Permit to Fly)**

For the renewal of a C of A or Permit To Fly, a check flight is required. This shall be conducted in accordance with a CAA Check Flight Schedule, prepared and maintained current for all non-EASA types by the CAA. Please see paragraph 3 for information on the conduct of the test and the treatment of the results.

NOTE: Check Flight Schedules may be obtained from the Flight Testing page of the Safety Regulation page at www.caa.co.uk.

6 CONTACT

You may contact the CAA regarding the contents of this Airworthiness Notice:

Email: flightdept.afts@srg.caa.co.uk

Tel: +44 (0)1293 573113

Post: Flight Department
Aviation House
Gatwick Airport South
West Sussex
RH6 0YR
UK

7 CANCELLATION

This Notice cancels Airworthiness Notice No. 48, Issue 3, dated 29 March 2006, which should be destroyed.

AIRWORTHINESS NOTICE

No. 50
Issue 5
21 March 2005

Deterioration Of Wooden Aircraft Structures

- 1** Concern over the susceptibility of wooden aircraft structures to deterioration, and recognition that extensive dismantling and inspection may be required to ensure their continued integrity was first expressed in Airworthiness Notices in 1957. In addition to wooden aircraft built in the United Kingdom, there is now a substantial number of foreign built wooden aircraft on the UK register.
- 2** Examination of older type wooden aircraft has highlighted several serious structural failures, and continued vigilance is therefore essential if the integrity of wooden aircraft structures is to be maintained. Deterioration has occurred in those assemblies where normal inspection is impossible and has not come to light until the adjacent structure has been disturbed to embody repairs or modifications, or during extensive overhaul. These closer examinations have revealed failure of glued joints in the primary structure and patches of timber in a state of decay as a result of exposure to extremes of atmospheric conditions.
- 3** General conclusions which have been drawn from the results of the examinations are:-
 - (a) the external appearance of wooden aircraft may give little or no indication of the condition of the timber and glued joints beneath the surface.
 - (b) Aircraft built with glued ply and timber torsion box construction are the most vulnerable.
 - (c) Under extreme conditions, deterioration can be very rapid indeed.
 - (d) Lack of proper drainage can be a significant contributory factor, particularly when associated with (c) above.
 - (e) Many glues, especially those in use before 1950, lose strength with age and/or cycles of humidity and temperature.
- 4** Attention is drawn to the following:
 - (a) Evidence to demonstrate that continued airworthiness has been established, means the aircraft records show that such aircraft have been dismantled, opened up and the upholstery removed to such an extent as to ensure that an adequate sample of timber and glued joints have been inspected and, if found to be defective, made good. In cases where defective timber and glued joints are found, it will be necessary to extend a sample of areas checked in order to establish confidence in the condition of the complete structure. This will apply to all wooden aircraft whether or not maintained to an approved maintenance schedule.
 - (b) Wooden aircraft left continuously in the open or, conversely, stored for long periods in very dry conditions are particularly susceptible to deterioration. The type of storage provided for the aircraft must therefore be taken into consideration when assessing the amount of inspection necessary to meet the requirements of (a) above.
 - (c) Prospective purchasers of foreign registered aircraft are advised:

- (i) to establish with the CAA whether the aircraft type is eligible for the issue of a UK C of A and the requirements/conditions that would apply. Some aircraft not eligible for a C of A may qualify for a Permit to Fly.
- (ii) Where such aircraft are of wooden construction, to consider carefully the condition of the structure and its history before applying for the issue of a UK C of A. The CAA will require information as to the type of constructions and glue used.

5 **SUPPLEMENTARY INFORMATION** CAA Civil Aircraft Airworthiness Information and Procedures Leaflet 6-1, Inspection of Wooden Structures.

6 **CANCELLATION** This Notice cancels CAA Airworthiness Notice No. 50, Issue 4, dated 29 October 2001, which should be destroyed.

AIRWORTHINESS NOTICE

No. 51
Issue 2
29 September 2006

Aerobatic Manoeuvres**1 INTRODUCTION**

- 1.1 Certain light aircraft on the British Register are permitted to perform a wide range of aerobatic manoeuvres although designed for a positive load factor of less than 6 g (usually the 4.4 g Semi-Aerobatic Load Factor given in British Civil Airworthiness Requirements). This is because, during certification of these aircraft, the permitted aerobatics were evaluated and the design strength was found to provide an adequate margin to permit them to be performed safely.
- 1.2 However, recording accelerometers were installed in some aircraft to determine (for fatigue life estimation) the actual loadings achieved. These recordings have shown that *g* loadings in excess of those to which the aircraft were designed have been imposed in service on a sufficiently large number of occasions to suggest that there is a risk that loads greater than the strength of the aeroplane may be imposed inadvertently.
- 1.3 This evidence has been collected on aeroplanes of relatively low aerodynamic drag, and there is no evidence to suggest that any problem exists on aeroplanes of relatively high drag such as biplanes, many of which have a long and satisfactory history.
- 1.4 Historically, some types, specifically identified as susceptible to inadvertent application of excessive load factor, received appropriate amendments to the Flight Manual and were required to have a cockpit warning placard installed. The national responsibility to mandate these no longer remains for EASA aircraft but the requirement for a Flight Manual statement and cockpit placard remains in place for non-EASA aircraft of Annex II to EC Regulation 1592/2002.

- 2 WARNING** Pilots of aeroplanes designed to semi-aerobatic load factors (i.e. less than 6 g to limit load) are warned that they should take care not to apply excessive *g* in the permitted aerobatic manoeuvres.

3 CANCELLATION

This Notice cancels Airworthiness Notice No 51, Issue 1, dated 15 May 1970, which should be destroyed.

AIRWORTHINESS NOTICE

No. 52
Issue 4
29 September 2006

Flight in UK Air Space of Foreign Registered Home-Built Aircraft

- 1 Article 8 of the United Kingdom Air Navigation Order 2005 prohibits the flight of foreign registered home-built aircraft in UK airspace. This is because a home-built aircraft cannot hold an ICAO Certificate of Airworthiness (issued to comply with the Convention on International Civil Aviation dated 7 December 1944), which Article 8 requires. The CAA may grant exemptions from Article 8 of the Order and so allow foreign registered home-built aircraft to fly in UK airspace. This Notice provides such an exemption and explains what is required of the owners of aircraft who wish to make use of it.
- 2 In June 1980 the European Civil Aviation Conference (ECAC) recommended that Member States should allow home-built aircraft holding a (non-ICAO) Permit to Fly or equivalent document issued by another ECAC State to fly in their country without any restrictions other than those stated on the Permit to Fly or equivalent document. The CAA implemented this recommendation on behalf of the United Kingdom by issuing an Exemption within Issue 1 of this Airworthiness Notice from compliance with the appropriate provisions of the Air Navigation Order relating to Certificates of Airworthiness.
- 3 Since the exemption was issued European Union legislative changes have removed certain constraints on aircraft ownership. As a result of these changes the exemption issued by the CAA could be a mechanism for importing into the UK a foreign registered home-built aircraft that has not been shown to comply with UK safety requirements. The CAA considers that the intent of the ECAC agreement was to permit over flight and short-term visits only. The CAA also has concerns over the level of airworthiness regulation that the States of Registry would be able to exercise during prolonged periods of operation in other States. To address these issues a new exemption, with revised conditions, has been issued as Appendix 1 to this Airworthiness Notice.
- 4 The conditions of the exemption require that, before flying a foreign home-built aircraft in UK airspace, the owner of the aircraft shall:
 - (a) send to the CAA the information specified in Schedule 1 to the exemption;
 - (b) obtain an acknowledgement from the CAA; and
 - (c) ensure that the documents specified in Schedule 2 to the exemption are available for inspection on demand by the CAA when the aircraft is in the UK.
- 5 A Form for sending the required information to the CAA is given as Schedule 1 to this Airworthiness Notice. The information should be submitted by e-mail to:
an52exemption@srg.caa.co.uk
NOTE: This e-mail address should not be used for any other purpose
An acknowledgement will be sent by e-mail. A paper copy of the acknowledgement must be kept available for inspection when the aircraft is in the UK.

6 Contact details for enquiries:

| Applications and Approvals Department
1E, Aviation House
Gatwick Airport South
West Sussex
RH6 0YR
UNITED KINGDOM

Fax: + 44 1293 57 3860

| E-Mail: aanda@srg.caa.co.uk

7 Where there is a need for a foreign registered home-built aircraft to be in the UK for more than 28 days in one calendar year, a specific exemption must be applied for. Application must be made to the Applications and Approvals Department at the above address.

| 8 Any person flying a foreign registered home-built aircraft in the UK without complying with the terms of the exemption at Appendix 1 (or obtaining an alternative exemption from the CAA) may be flying in breach of Article 8 of the Air Navigation Order 2005 and be liable to prosecution.

| 9 This Notice cancels Airworthiness Notice 52 Issue 3, dated 29 March 2006, which should be destroyed.

AIRWORTHINESS NOTICE No. 52**Appendix 1***Issue 4**29 March 2006***Air Navigation Order (2005) Exemption****1 EXEMPTION FOR FOREIGN REGISTERED HOME-BUILT AIRCRAFT**

In order to facilitate over flight and visits to the UK by foreign registered home-built aircraft, the Civil Aviation Authority, in exercise of its powers under Article 153 of the Air Navigation Order 2005, hereby exempts, subject to paragraph 2, any home-built aircraft registered in a Member State of the European Civil Aviation Conference from the provisions of Article 8 of the said Order to the extent necessary to enable the aircraft to fly in accordance with the Permit to Fly or equivalent document issued by the State of Registry of the aircraft.

2 CONDITIONS OF EXEMPTION

This exemption is granted subject to the following conditions:

- (a) The aircraft shall not be flown over any assembly of persons or over any congested area of a city, town or settlement.
- (b) The aircraft shall not be flown for the purpose of public transport or aerial work.
- (c) The aircraft shall be flown only in accordance with daytime Visual Flight Rules.
- (d) The conditions, limitations and restrictions applicable under the Permit to Fly or equivalent document issued by the State of Registry shall be observed.
- (e) The aircraft shall not remain in the United Kingdom pursuant to this exemption for more than 28 days in any one calendar year.
- (f) Prior to each visit to the UK, the aircraft owner shall provide to the CAA the information specified in Schedule 1 to this exemption.
- (g) The owner of the aircraft shall ensure that the documents specified in Schedule 2 to this exemption are available for inspection by the CAA on demand when the aircraft is in the UK.

3 The exemption to Article 8 of the Air Navigation Order 2000 dated 22 March 2002 is hereby revoked

4 This exemption shall have effect from the date hereof until revoked.



for the Civil Aviation Authority
dated 29 March 2006

AIRWORTHINESS NOTICE No. 52

Schedule 1

Issue 2

29 September 2006

Prior to each visit by a foreign registered home-built aircraft to the UK under the terms of the exemption provided with this Notice the owner of the aircraft shall forward to the CAA the information specified in this Schedule 1 as set out below:

Information required for foreign registered home-built aircraft exemption	
To: UK CIVIL AVIATION AUTHORITY Applications and Approvals Department 1E, Aviation House Gatwick Airport South West Sussex RH6 0YR UNITED KINGDOM	E-mail: an52exemption@srg.caa.co.uk
Aircraft Registration	
Aircraft Type	
Intended date of entry to the UK	
Intended date of exit from the UK	
Name of Aircraft owner	
Address of Aircraft owner	
Date of issue of Permit to Fly or equivalent document (as issued by the State of Registry)	
The date on which the Permit to Fly or equivalent document becomes invalid. Important Note: The Permit or equivalent document must be valid for the full period of the visit.	

AIRWORTHINESS NOTICE No. 52**Schedule 2***Issue 1**29 March 2006***Documents to be made available for inspection by the CAA**

Whenever a foreign registered home-built aircraft is visiting the UK under the terms of the exemption provided with this Notice the owner of the aircraft shall ensure that the documents specified in this Schedule 2, as set out below, are available for inspection by the CAA on demand:

- A Valid Permit to Fly or equivalent document for the aircraft issued by the State of Registry;
- A copy of the CAA's acknowledgement of having received the data specified in Schedule 1 to this Notice; and
- Valid insurance certificate or document as appropriate.



**No. 54
Issue 2
29 October 2001**

Instruments With Unusual Presentations

- 1** From time to time on imported aircraft, especially those of less than 5700 kg (12 500 lb) maximum weight, instruments are found which have unusual presentations. Whether these instruments are fitted in order to meet mandatory requirements or as extras, they must not be capable of misleading a pilot conversant only with conventional presentations.
- 2** A CAA evaluation of any such instrument is required for United Kingdom certification of any imported aircraft to which it is fitted, or if it is introduced by modification action. This evaluation will include a review of the actual presentation of the instrument and its position with respect to other instruments in the panel. It will also include flight tests if necessary.
- 3** Enquiry to the Safety Regulation Group at Aviation House will determine whether or not any such instrument has already been investigated and whether it is accepted for a mandatory or non-mandatory role.
- 4** Typically, a placard will be required adjacent to any such instrument giving warning of its presentation and stating 'unapproved' if it is fitted only as an extra and is not acceptable in fulfilment of a mandatory requirement.
NOTE: The placard must not be easily erased, disfigured or obscured.
- 5** The log book of any aircraft in which such an instrument is fitted and accepted should record the type of instrument and the reference for the acceptance, unless this is covered in the Flight Manual or Type Certification documents.
- 6** **CANCELLATION** This Notice cancels Airworthiness Notice No. 54 Issue 1, dated 26 June 1970, which should be destroyed.

AIRWORTHINESS NOTICE

No. 60
Issue 2
28 September 2005

Continuing Airworthiness and Safety Standards of Passenger Service and In-Flight Entertainment Systems**1 INTRODUCTION**

- 1.1 In recent years the aviation industry has experienced a number of incidents involving In-Flight Entertainment systems (IFE). IFE systems now regularly include integration with a variety of related equipment, including seat movement mechanisms, video systems, lighting and telecommunications. (For the purposes of this Notice all further references to IFE will also include consideration of these integrated systems and does not differentiate between 'one-off' modifications on corporate aircraft and series installations on commercial aircraft).
- 1.2 The availability of innovative electronic technology makes it clear that the increasing use of new technology within passenger cabins will continue. Significantly, more complex systems and their electrical wiring installations demand higher power consumption. Most IFE systems are installed as operator optional modifications and may not be subject to original aircraft manufacturer involvement. This has resulted in Instructions for Continuing Airworthiness (ICAWs), scheduled maintenance and system maintenance manuals being overlooked or given minimal consideration.
- 1.3 The CAA has conducted a review of the above concerns, the outcome of which identified a number of issues. This Notice has been published to provide guidance as to the best practice approach to gaining approval of and continuing airworthiness of In-Flight Entertainment systems and the related passenger services. In particular it identifies the need to consider and where appropriate determine maintenance practices to assure the continuing airworthiness of the systems in service.

2 BACKGROUND

- 2.1 The variety and complexity of passenger in-seat services and the cabin installation can involve several disparate and separately approved modifications. The lack of specific scheduled maintenance guidance from the Supplemental Type Certificate (STC) Holder(s), for the total installation, is considered a potential weakness of the certification process. This can lead to a lack of clarity as to where the overall responsibility for the continuing airworthiness of the interface between the aircraft and the modified systems lies.
- 2.2 The adequacy of the certification requirements and objectives is not in question, but their practical interpretation can lead to system interface design and installation problems. In particular, defined standards for equipment and wiring installation/reinstallation are often minimal. IFE systems are often installed by organisations other than the aircraft manufacturer that can lead to differences in installation between otherwise identical aircraft, thus contributing to in-service problems.
- 2.3 Experience from the investigation of occurrences has shown that the condition of the installed system can deteriorate as a result of cabin environmental conditions. The constituent parts of an IFE system installation, including wiring, located within the passenger cabin are likely to be disturbed or removed on numerous occasions throughout the operational life of an aircraft. This increases their vulnerability to occurrences if the maintenance standards and instructions are imprecise.
- 2.4 The JAA have published JAA Administrative and Guidance Material, Section One: General Part 3: Temporary Guidance Leaflet (TGL) number 17: Passenger Service and In-Flight Entertainment (IFE) Systems. This document provides guidance for the certification of new IFE designs. The CAA supports the use of this document. However, it has been identified

that it does not provide comprehensive information regarding the development of installation instructions, standards and ICAW.

- 2.5 Applicable certification codes will typically lead the assessment of IFE to be a “nonessential” system. As such the system will only be subjected to limited system safety assessment and will not initiate the traditional maintenance task development processes. The service failures seen in practice would certainly appear to suggest that this ‘no additional-maintenance required’ assumption is invalid. Where appropriate, maintenance tasks should be identified to ensure system integrity. This is discussed further in Appendix 1 to this Notice.

3 OBJECTIVE

This Notice has been issued to supplement JAA TGL 17 and to provide additional guidance to industry in order to ensure that:

- (a) initial installation standards and instructions are clear and concise and demonstrate equality with aircraft manufacturers’ production standards;
- (b) clear “overall” continued airworthiness responsibility is defined. There should be robust and co-ordinated ICAW data developed and published. Such data should cover the interface between IFE modifications and original design to ensure repeatable in-service removal and re-installation standards are achieved during scheduled maintenance and defect rectification;
- (c) a logical method to develop IFE maintenance tasks and solutions is utilised; and
- (d) IFE scheduled maintenance tasks are integrated into the Approved Maintenance Programme (AMP). Existing tasks to be reviewed and amended and when identified via the methodology above, the new IFE related tasks included.

4 APPLICABILITY

4.1 New IFE Installations

All new IFE installations and modifications should take account of and meet the intent of this Notice together with the JAA TGL 17.

NOTE: EASA will be transcribing the TGL into their publications in the near future.

4.2 Existing IFE installations

It should be noted that Commission Regulation (EC) NO 2042/2003, Part M.A.302 came into force on 28 September 2005. This particular requirement outlines what is expected to be included in an approved maintenance programme. With regard to M.A.302 (c) 2 this notice provides the competent authority instructions, specific to IFE installations, which should be addressed as part of the periodic programme review. It is therefore expected that the applicable aspects of this notice be incorporated in the programme within one year of publication of this notice to comply with the requirements of Part M.A.302.

5 RECOMMENDATION

- 5.1 In order to address the above concerns and objectives it is recommended that project management practices be utilised to ensure appropriate compliance with certification codes, development of applicable and effective ICAWs and scheduled maintenance tasks.
- 5.2 An individual should be identified to the CAA who would fulfil the role of project manager. It is expected that the project manager holds a suitable position within an approved organisation, and, if not within the operator’s organisation, this role is contractually linked to the operator.
- 5.3 A prime objective of the project should be to address the issues in paragraph 3. All stakeholders should be identified, these would include, as a minimum, the CAA, all the design organisations involved in the total installation, the aircraft manufacturer (where appropriate), equipment manufacturers (where appropriate), the installing organisation and the operator.

5.4

Considerations for Project Manager

The IFE system project plan should manage, as a minimum, compliance with the following:

- (a) Definition of the whole IFE Installation, e.g. the STCs - how many, their approval basis, compatibility with TC and other STC(s), continued airworthiness responsibilities etc.
- (b) The installing organisation – that they have the necessary approvals, competence, facilities, equipment etc. (with respect to the installation in question).
- (c) Specific aircraft being modified - effect on particular airframe e.g. documents to be amended, maintenance programme amendment. Validation of all proposed documentation changes.
- (d) Operational considerations – e.g. Crew operating instructions and training (including any normal, abnormal and emergency procedures), limitations of use etc.
- (e) Stakeholders – establish communication links and identify all the relevant parties to ensure full and complete liaison with respect to their role in the whole IFE installation.
- (f) Timeline – identification of specific milestones in the process, e.g. Agreed times to involve/contact CAA, what should be presented at these times etc.
- (g) Development of Scheduled Maintenance and Maintenance Instructions – who will be responsible for doing this and the methodology to be utilised. (See Appendix 1 for guidance.)
- (h) Ensure all stakeholders understand their role in order to achieve compliance with this Notice.

5.5

Considerations for Designer

The Designer for an IFE System should consider, as a minimum, the following key areas:

- (a) Establish communication links with the project manager and the relevant stakeholders.
- (b) Ensure that all installation instructions, operating conditions and equipment limitations (e.g. European Technical Standard Order (ETSO) and Declaration of Design and Performance (DDP)) are considered and recorded in the appropriate drawings/manuals etc.
- (c) It is expected that the designer will provide installation instructions (engineering drawings) that as a minimum equate to the original aircraft production standards. Statements such as “install in accordance with industry standard practices,” would be unacceptable. It is considered that such statements are inadequate because the standard practices cannot alone define the location, routing or security of electrical wiring for example.
- (d) Identify any features that are believed to require new or amended scheduled maintenance tasks and participate in the scheduled maintenance task analyses. (See Appendix 1 for guidance.)
- (e) Ensure that all appropriate Airworthiness/Operational data is produced in sufficient time for the operator to incorporate into relevant manuals prior to entry into service. This should include normal, abnormal and emergency procedures.
- (f) IFE installations (equipment or wiring) may affect existing TC/STC Holder derived maintenance tasks. The designer should assess, in accordance with original scheduled AMP development processes, the effect of the modification on the existing maintenance tasks and inspections, and address accordingly.
- (g) Validated maintenance instructions to be produced so that the original installation standards are maintained after in-service activities.
- (h) Establishment of engineering liaison processes to address minor change requests required during installation, and to monitor and react to operator in-service reliability feedback.

5.6 Considerations for Installer

The installer of an IFE system should manage, as a minimum, compliance with the following:

- (a) Establish communication links with the project manager and the relevant stakeholders.
- (b) A verified internal competence and capability assessment should be carried out against the specific installation requirements. This should cover, as a minimum, any necessary unique skills, technologies, tools and training. Installer's competence/scope should be described within the Part 145 Maintenance Organisation Exposition (MOE).
- (c) The pre-planning function should seek to identify any shortcomings within the installation instructions prior to installation on the aircraft, and to report to the relevant stakeholders for resolution.
- (d) Provide feedback and gain approval of minor installation and instruction/drawing changes found during installation.

5.7 Considerations for Operator

The operator of an aircraft installed with an IFE system should manage, as a minimum, compliance with the following:

- (a) Establish communication links with the project manager and the relevant stakeholders.
- (b) To update the existing Continuing Airworthiness (CAW) management processes to ensure that lines of communication with all of the IFE STC holders are established. These links are to be maintained to ensure that changes to relevant stakeholders are known during the in-service life of the IFE installation.
- (c) Prior to entry into service, operational procedures and crew training should be accepted by the CAA.
- (d) Participate in the scheduled maintenance task analyses. Amend existing tasks and create new tasks as appropriate for addition to the AMP in collaboration with the TC/STC holder(s) and project manager. This must be approved by the CAA prior to entry into service. (See Appendix 1 for guidance.)
- (e) Establish an effective IFE reliability system to feedback data to the TC/STC holder(s) to ensure that the CAW of the installation is maintained at the intended design standard. If necessary this will then produce additional changes to the ICAW.

6 CONCLUSION

As the expectation is that the project manager will be employed by an approved organisation, this project management will form part of the routine oversight of the approval by the CAA, when an IFE project is undertaken. The project manager should liaise with the Surveyor assigned to the organisation approval at an early stage to apprise them of the project definition and proposed plan. This will facilitate early identification of the appropriate CAA personnel to ensure all aspects are efficiently overseen. Review of continuing compliance with the relevant aspects of this Notice will form part of routine operator and design organisation oversight by CAA.

7 CANCELLATION

This Notice cancels Airworthiness Notice No. 60, issue 1, dated 21 March 2005, which should be destroyed.

AIRWORTHINESS NOTICE No. 60**Appendix 1***Issue 1**21 March 2005***Guidance on the Development of IFE Scheduled Maintenance Tasks and Solutions****1 INTRODUCTION**

As stated in paragraph 2 of this Appendix, current certification codes when applied to the installation of operator optional systems may not provide the necessary cohesion to initiate the current industry standard practice for scheduled maintenance development (e.g. application of Maintenance Steering Group-3 (MSG-3) logic, that would result in an amendment to the Maintenance Review Board Report (MRBR)). Service experience has shown that a large number of IFE related reported occurrences were smoke/fire events caused by an ignition source within the IFE system. This type of failure consequence is clearly a safety concern and needs to be addressed when identifying applicable and effective scheduled maintenance and maintenance instructions. Recognising that Passenger Services and IFE modifications will not normally trigger involvement of the relevant Maintenance Review Board, the following guidance is considered an acceptable means to develop appropriate maintenance controls for such systems.

2 PROCEDURE

2.1 In order to apply the logic in the following flowchart there are certain precursors to understand. Design features within the modification where failure or damage may exist and could result in a degradation of system function or a safety concern are designated Maintenance Significant Items (MSI). MSIs are identified from asking the following questions:

- (a) Could the failure of this item be undetectable or not likely to be detected by the operating/cabin crew during normal duties?
- (b) Could the failure affect safety on the ground or in flight?
- (c) Could the failure or combination of failures have a significant effect on operations?
- (d) Could the failure or combination of failures have a significant economic impact?

2.2 For each MSI the function, functional failure, failure consequence and failure cause should be identified:

- (a) **Function** is the chosen design solution to prevent undesirable failure consequences e.g. insulation function, cooling function etc.
- (b) **Functional failure** is the failure of a chosen design solution to perform the intended function.
- (c) **Failure consequence** is the result of the functional failure. The most significant failure consequences are the presence of an ignition, heat or electric shock source that could lead to smoke/fire or passenger injury.
- (d) **Failure cause** is the reason for the functional failure e.g.
 - Wiring prone to damage;
 - Components susceptible to fluid spill;
 - Dust/debris contamination causing overheating;
 - Components prone to overheating;
 - Passenger traffic damage;
 - Components subject to frequent removal/replacement;
 - Poor electrical bonding;
 - Mechanical breakdown due to wear.

(List not exhaustive.)

2.3 **Development of Scheduled Maintenance Tasks and Solutions**

Once the functions and functional failures have been identified the series of questions contained in the following flowchart should be asked to determine the applicable and effective scheduled maintenance task and/or solutions to mitigate/prevent the failure of a chosen design solution. This development should be accomplished with the collaborative effort of the TC/STC Holder(s), operator and project manager as appropriate.

2.4 **Guidance on how to use the Flowchart**

Box 1

This question must be asked for each functional failure of the chosen design solution being analysed. The intent is to segregate the evident and hidden functional failures. The operating crew consists of qualified flight compartment and cabin attendant personnel who are on duty. Normal duties are those duties associated with the routine operation of the aircraft on a daily basis.

Box 2

Failure consequences to consider are those previously described e.g. ignition, heat or electric shock.

Box 3

The failure in question does not directly affect safety and therefore the issue is one of reliability and/or passenger convenience. The analyst should discuss this with the operator and address the failure as necessary.

Box 4

The question takes into account failure(s) in which either the single hidden/dormant failure (from Box 1) or in combination with one additional failure could cause one of the identified undesirable consequences.

Box 5

This is to propose various applicable and effective tasks and/or preventative actions, either singularly or in combination, for the analyst to identify:

(5a) Inspection – either:

- Detailed (An intensive examination of a specific item, installation or assembly to detect damage, failure or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirrors, magnifying lenses, etc. may be necessary. Surface cleaning and elaborate access procedures may be required).

Or

- General Visual (A visual examination of an interior or exterior area, installation or assembly to detect obvious damage, failure or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to enhance visual access to all exposed surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight or drop-light and may require removal or opening of access panels or doors. Stands, ladders or platforms may be required to gain proximity to the area being checked.)

(5b) Functional Check

- A quantitative check to determine if one or more functions of an item performs within specified limits.

(5c) Restoration Task

- That work necessary to return the item to a specific standard. Restoration may vary from cleaning or replacement of single parts up to a complete overhaul.

(5d) Discard

- The removal from service of an item at a specified life limit.

(5e) Update Maintenance Practice/instructions

- Amend standard practices (either company or manufacturers) or update maintenance manuals to provide additional guidance or precautions/warnings.

(5f) Training

- Update or introduce training programmes to address identified knowledge shortfalls in crew, maintenance and/or support staff.

(5g) Design/Modification

- Identification of a shortcoming within the design that requires correction and subsequent modification.

Box 6

If any (or combination of) boxes 5a, 5b, 5c, and 5d are selected the task(s) should be included in the operators approved maintenance programme. This will require approval by the CAA.

Box 7

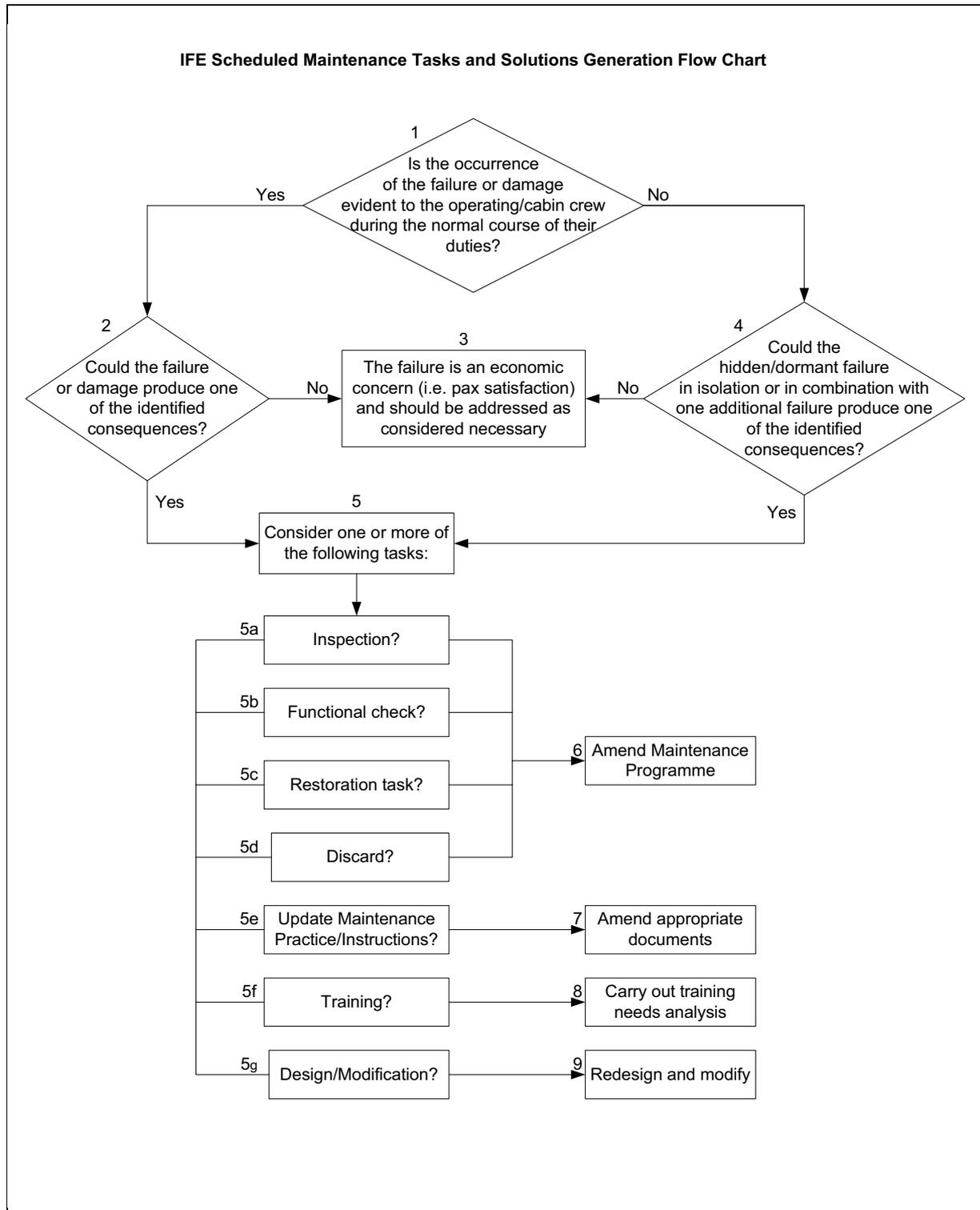
If 5e is considered the applicable and effective solution then the necessary documents should be amended and validated e.g. Maintenance Manual, Wiring Diagram Manual, Standard Practices Manual, Component Maintenance Manual.

Box 8

If training has been considered the applicable and effective solution, then the appropriate training should be identified and implemented via a documented training needs analysis.

Box 9

If the identified solution rests with a redesign then this must be accomplished via an approved process



AIRWORTHINESS NOTICE

No. 62
Issue 4
2 April 2004

Fatigue Lives

- 1** For fatigue reasons the major components (e.g. wings and centre-sections) of certain types of aircraft have lives restricted to a specific number of flying hours, flight or landings. These restrictions have, in the main, been confined to large transport type aircraft but more recently it has been found necessary to introduce similar restrictions on certain smaller types of aircraft, some of which are operated in the Private Category.
- 2** The 'lifing' of components is intended to prevent structural failure under the action of repeated air and ground loads experienced in service, the lives being based on the results of tests carried out by the manufacturers of the aircraft. If the specified fatigue life of a critical component is exceeded, the possibility arises of catastrophic structural failure. Where fatigue lives have been imposed, full details have been published by individual manufacturers in their Service Bulletins and compliance with such information is required by the CAA. Structural Life limitations are determined for Likely Average utilisation of a type of aircraft. Any operations which depart substantially from the typical, require reassessment of the structural life limitations for those specific operations and may require alteration in the Safe Fatigue Lives. Examples of operations in this category are low level flights in a maritime surveillance, or geological survey role (particularly using pressurised aircraft), or long endurance operations.
- 3** For the purpose of establishing structural life limitations a landing is defined as an occasion when the main undercarriage wheels make contact with the airfield surface and lift is significantly destroyed. A flight is associated with each landing and, therefore, the total number of flights pressurised and unpressurised is equal to the total number of landings. A pressurised flight is one in which the aircraft's pressurisation system is operated at a pressure differential of 14 kN/m² (2 lb/in²) or above.
- 4** Because of the transfer of components from one aircraft to another, it has, in some instances, been impossible to establish the remaining safe life of individual components. For this reason it is necessary to ensure that when a component in this category is installed in an aircraft, a record is kept with the aircraft documents showing, as applicable, the hours flown and number of flights or landings already sustained by the component at the time of installation. In the case of pressurised flights the applicable pressure differential may be significant. Certificates of Release to Service may not be signed until the signatory is satisfied that the required history of the component has been established.
- 5** Failure to comply with the above procedure may, due to the absence of evidence showing that the components in question have any remaining safe life, result in owners or operators being required to replace such components prematurely.
NOTE: In addition to recording operating hours of Engines, Auxiliary Power Units and Propellers, the CAA require on most engines, auxiliary power units and propellers that a record be kept of cycles completed. Cycles are defined by the Manufacturer of each engine, auxiliary power unit and propeller.

6

CANCELLATION

This Notice cancels Airworthiness Notice No. 62, Issue 3, dated 16 March 1989, which should be destroyed.

AIRWORTHINESS NOTICE

No. 65
Issue 1
16 March 1988

CAA Use of Confidential Information**1 INTRODUCTION**

- 1.1 The Air Navigation Order places a duty on the CAA to consider:-
- (a) the design, construction, workmanship and materials of aircraft and their associated equipment, and
 - (b) the results of flying trials and such other tests as are necessary
- when it is satisfying itself that aircraft registered in the UK are fit to fly. In carrying out this duty the CAA, as it is empowered to do, makes extensive use of reports furnished to it by appropriately qualified persons.
- 1.2 Such reports may come in various forms and have a range of purposes. They may provide a physical description of anything from a complete aeroplane to a small item of equipment. They may specify performance or present test results. They may demonstrate that certain design or manufacturing standards are met.

2 CAA'S USE OF SUCH INFORMATION

- 2.1 However it is presented, the CAA's interest in such information stems from its need to be satisfied that a given aircraft or aircraft type is fit to fly. Once satisfied, if the CAA is subsequently presented with another aircraft (or item of equipment or operating proposal etc.) which it knows to be identical in nature it cannot and should not ignore this state of knowledge and insist that the person seeking approval goes through the whole process of satisfying the CAA again.
- 2.2 The CAA is aware that there may be commercial implications to the policy described in paragraph 2.1, in that second or subsequent applications for a given approval may derive substantial benefit from the evidence provided when the first application was cleared. Technical data are frequently submitted with notes purporting to place restrictions on their use and it is possible that undue significance may be attached to such notes. One purpose of this Airworthiness Notice is, therefore, to make it clear that when an aircraft or item of equipment has once been shown fit for a particular purpose, the fact has been established: the CAA does not need to demand repetitive evidence from a later applicant for an identical certification and will not ask for it. The onus is, of course, upon such an applicant to demonstrate that the relevant circumstances are identical.
- 2.3 If safety depends on the way in which an aircraft (or item of equipment etc.) is used, the CAA may have considered and approved certain proposed operating limitations, or it may have required evidence that established operating procedures are acceptable; if so, it may require similar material to be provided by subsequent operators seeking a similar clearance. This is, however, a separate matter.

3 CONFIDENTIALITY OF PROPRIETARY INFORMATION

- 3.1 It is no contradiction of the principles in paragraph 2, to state that subject to the specific provisions in the Civil Aviation Act, the CAA totally accepts prohibitions placed by the owners of information on its disclosures to third parties. Thus, if an aircraft requires modification in order to satisfy a design requirement, no details of a proprietary

modification would be passed on by the CAA to a third party without the express permission of its owners. Nor, if an operation depended upon certain proprietary Flight Manual limitations or data, would such information be passed on.

- 3.2 Having stated this, if the CAA were presented with details of a modification (or Flight Manual amendment etc.) which was identified as being identical to one which from prior experience it knew would satisfy an airworthiness requirement, such a modification would have to be considered acceptable. Where this involves a light aircraft type of which there exist or are likely to be numerous operators, the CAA may, for efficiency, issue a CAA Supplement to the Flight Manual or Pilot's Operating Handbook, based on data or information supplied by a manufacturer or an Applicant. As with the situation described in paragraph 2, the CAA can have no justification for requiring further evidence once it has been established that its requirements can be satisfied in a particular way. The onus is, of course, still upon such an applicant to demonstrate that the relevant circumstances are identical.

4 EVIDENCE OF IDENTICALITY

- 4.1 To establish that a component, item of equipment, complete aircraft, or operating condition is identical to one already approved may not be a simple matter. Design criteria, manufacturing processes, quality control, systems safety assessments, flying qualities and performance, etc., may all be involved and have to be considered.
- 4.2 In view of this, the CAA will invariably require applicants who request certification on the basis of identity to provide evidence that this claim is supported by the original applicant (manufacturer, operator, etc.) against whose certification comparison is being made. In the absence of such confirmation, the CAA will normally require substantiating data to be developed and presented to justify certification in its own right.



No. 66
Issue 4
29 September 2006

Aircraft Insurance

- 1** Attention is drawn to the fact that when the CAA Safety Regulation Group's Test Pilots fly aircraft for any test purposes neither the CAA nor the Test Pilots accept responsibility for any damage to the aircraft or to third parties or to any person or property whatsoever.
- 2** All owners are, therefore, required to ensure that insurance policies covering damage to their aircraft and to third parties are suitably endorsed to cover flights by the CAA Safety Regulation Group's Test Pilots.
NOTE: It is understood that in general, Insurers and Underwriters are willing to extend the cover of their aircraft policies for this purpose on request and without further charge.

3 CANCELLATION

This Notice cancels Airworthiness Notice No. 66, Issue 3, dated 29 October 2001, which should be destroyed.

AIRWORTHINESS NOTICE

No. 71
Issue 3
29 September 2006

Maintenance Error Management Systems**1 INTRODUCTION**

1.1 In January 2003, JAR 145 amendment 5 (subsequently incorporated into EASA Part 145) introduced paragraph 145.A.60 - Occurrence Reporting, to require organisations to "establish an internal occurrence reporting system...to enable the collection and evaluation of such reports, [which have resulted, or may result, in an unsafe condition]. This procedure shall identify adverse trends, corrective actions taken or to be taken by the organisation to address deficiencies and include evaluation of all known relevant information relating to such occurrences and a method to circulate the information as necessary." CAA seeks to provide an environment in which such errors may be openly investigated in order that the contributing factors and root causes of maintenance errors can be addressed using a system that would complement, not supplant, the two current systems for reporting maintenance errors (MORS and CHIRP).

NOTE: Square brackets [] denote CAA insertion.

1.2 Mandatory Occurrence Reporting (MOR) scheme exists in order that significant safety issues are brought to the notice of the CAA. However, the MORs scheme is not intended to collect and monitor the normal flow of day-to-day defects/incidents etc. which, in remaining an industry responsibility (CAP 382 Mandatory Occurrence Reporting System, paragraph 5.4.5), forms an important part of the overall operational safety task. This Notice concerns, primarily, those events which fall below the MOR criteria but which, nevertheless, are important for an organisation to understand and control. However, the principles described in this Notice may also be applied by an organisation to their own internal investigation of incidents meeting the MOR criteria

NOTE: Organisations will still be required to report MORs to the CAA.

1.3 The Confidential Human Factors Incident Reporting Programme (CHIRP) scheme provides an alternate reporting mechanism for individuals who want to report safety concerns and incidents confidentially. However CHIRP should not be considered as an alternative to implementing a Maintenance Error Management System (MEMS) scheme. MEMS and CHIRP perform different functions albeit acting towards the same ultimate aim, i.e. improved flight safety.

1.4 Maintenance errors with serious consequences such as accidents or incidents are routinely investigated by organisations, Air Accident Investigation Branch or CAA. Other operationally significant events (e.g. technical delays, cancellations, etc.) may not be legally required to be reported externally but are frequently investigated by organisations albeit too often only to apportion responsibility for the event, rather than to determine cause. Below these levels are events without operational significance which may rarely be investigated (e.g. the omission of an oil filler cap which, by chance, is noticed and corrected before flight). In order to gain a better understanding of the problems and factors which contribute to errors it is necessary to investigate these and operationally significant events before they possibly contribute to or cause an incident or accident in the future.

1.5 It is important to examine not just *what* happened, but *why* it happened, in order to determine the root causes and problems.

2 MAINTENANCE ERROR MANAGEMENT SYSTEM

- 2.1 AN 71 Issue 1 (2000) set out CAA policy on MEMS and, prior to the requirements introduced by JAR 145.60 and Part 145.A.60, encouraged maintenance organisations, in particular those maintaining large commercial air transport aircraft, to adopt MEMS concepts. Subsequently, the JAA Maintenance Human Factors Working Group incorporated very similar guidance into their report published in May 2001 (reproduced in CAP 716 issue 2, 18/12/2003), with the key elements being incorporated into EASA Part 145.A.60(b) and AMC 145.A.60(b). Both key, and more detailed, elements are described below, in particular the importance of a 'just culture' for the successful functioning of a MEMS.
- 2.2 Prevailing industry best practice has shown that a MEMS should contain the following elements:
- Clearly identified aims and objectives
 - Demonstrable corporate commitment with responsibilities for the MEMS clearly defined
 - Corporate encouragement of uninhibited reporting and participation by individuals
 - Disciplinary policies and boundaries identified and published
 - An event investigation process
 - The events that will trigger error investigations identified and published
 - Investigators selected and trained
 - MEMS education for staff, and training where necessary
 - Appropriate action based on investigation findings
 - Feedback of results to workforce
 - Analysis of the collective data showing contributing factor trends and frequencies
- 2.3 The aim of the scheme is to identify the factors contributing to incidents, and to make the system resistant to similar errors. Whilst not essential to the success of a MEMS, it is recommended that for large organisations a computerised database be used for storage and analysis of MEMS data. This would enable the full potential of such a system to be utilised in managing errors.
- 2.4 For the purpose of this Airworthiness Notice a maintenance error is considered to have occurred when the maintenance system, including the human element, fails to perform in the manner expected in order to achieve its safety objectives. The human element includes technicians, engineers, planners, managers, store-keepers – in fact any person contributing to the maintenance process. The foregoing definition differs from that of a human error as it demands consideration of the system failings (e.g. inadequate staffing, organisational factors, tooling availability, ambiguous manuals etc.) as well as the error committed by a person.

3 CAA ASSURANCES

- 3.1 It is recognised that the success of a MEMS programme is dependent on full and free investigation without fear of action by the CAA. Accordingly, the CAA gives the following assurances:
- 3.1.1 The CAA will be checking, as part of its approval audit process, that the organisation's internal occurrence reporting and investigation process is functioning as described in the procedures approved by the CAA and in line with the objectives of the programme as explained in CAP 716 Issue 2. The CAA audit may involve the review of disidentified MEMS investigations such that the foregoing can be satisfied. However, the CAA makes the following assurances that it will:
- (a) subject to (b) not disclose the name of the person submitting the MEMS report, nor of a person to whom it relates, nor pass on a MEMS report to a third party, unless required to do so by law or unless the person(s) concerned authorises such disclosure.

- (b) take all reasonable steps possible to avoid disclosing the identity of the reporter or of those individuals involved in the occurrence, should any follow-up action arising from a MEMS report be taken.
- (c) not, as its policy, institute criminal proceedings in respect of unpremeditated or inadvertent breaches of the law or requirements which come to its attention only because they have been reported under the MEMS scheme, except in cases involving dereliction of duty amounting to gross negligence or recklessness. Such an assurance is similar to that provided under the MOR scheme.

3.2 As examples of what the CAA might require, as evidence that an organisation has a working MEMS programme in accordance with Part 145.A.60(b), a surveyor may ask to see the following documents and evidence, and in order to satisfy himself, he may wish to speak to individual members of staff at any level within the organisation:

- (a) A copy of the company's safety and disciplinary policy and determine that staff are aware of this policy, and believe that it will be, and has been, applied fairly.
- (b) The procedure describing the company's process for reporting and investigating incidents and errors, and the types of occurrences that would normally be investigated.
- (c) Evidence that occurrences meeting the criteria detailed above have been reported, and to assure himself that occurrences are not frequently going unreported.
- (d) Evidence that occurrences meeting the criteria detailed above have been investigated, and to assure himself that occurrences are being, and have been, fairly investigated. It is hoped that an organisation would cooperate with a surveyor in putting him in touch with individuals who have been party to investigations, but only with the agreement of the individuals concerned.
- (e) Within a large company, evidence that MEMS investigators had received appropriate training.
- (f) Evidence that the organisation had acted, or was acting, upon results of MEMS investigations, based on risk assessment. This may mean that no action had been taken if a risk assessment has deemed that the causes were unlikely, in isolation or in combination, to result in a hazardous event in the future. A surveyor would expect to see evidence of action(s) to prevent root causes, and/or to mitigate the effects of error where appropriate.
- (g) Evidence of feedback to the workforce, on both occurrences and their investigation, and remedial action taken, would also be expected.

3.3 For a small organisation, the surveyor would expect evidence as described above, but on a less structured basis.

3.4 If an organisation has no evidence to offer in the form of reported and investigated occurrences, the surveyor may wish to talk to staff to assure himself that there have been no such occurrences, as opposed to occurrences going unreported and uninvestigated. The surveyor would respect staff confidences in seeking such evidence.

4 MEMS CODE OF PRACTICE

4.1 The CAA encourages organisations to adopt the following code of practice regarding a MEMS:

4.1.1 Where an occurrence reported via MEMS indicates an unpremeditated or inadvertent lapse by an employee, as described below, the CAA would expect the employer to act reasonably, agreeing that free and full reporting is the primary aim in order to establish *why* the event happened by studying the contributory factors that led to the incident, and that every effort should be made to avoid action that may inhibit reporting.

4.1.2 In the context of error management it is considered that an unpremeditated or inadvertent lapse should not incur any punitive action, but a breach of professionalism may do so. As a guideline, individuals should not attract punitive action unless:

- (a) the act was intended to cause deliberate harm or damage.
- (b) the person concerned does not have a constructive attitude towards complying with safe operating procedures.

- (c) the person concerned knowingly violated procedures that were readily available, workable, intelligible and correct.
- (d) the person concerned has been involved previously in similar lapses.
- (e) the person concerned has attempted to hide their lapse or part in a mishap.
- (f) the act was the result of a substantial disregard for safety.

“Substantial disregard”, for this purpose, means:

- In the case of a certification authorisation holder (e.g. licensed engineer or Certifying Staff) the act or failure to act was a substantial deviation from the degree of care, judgement and responsibility reasonably expected of such a person.
- In the case of a person holding no maintenance certification responsibility, the act or failure to act was a substantial deviation from the degree of care and diligence expected of a reasonable person in those circumstances.

The degree of culpability would vary depending on any mitigating circumstances that are identified as a result of the MEMS investigation. It follows that any action taken by the organisation would also be on a sliding scale varying from corrective measures such as retraining through to dismissal of the individual.

4.1.3 In the case of incidents investigated via a MEMS, irrespective of whether or not such incidents were brought to the knowledge of the CAA, the CAA expects an organisation to address the problems which contributed to these incidents. The organisation should, where possible, implement appropriate measures to prevent the problem from re-occurring, or alternatively monitor future occurrences, according to the degree of risk and likelihood of re-occurrence. A supporting database is useful in these circumstances in helping to assess the frequency of occurrence and any associated trends.

4.1.4 The CAA would expect that identified safety issues would be acted upon. If the CAA becomes aware, by whatever means, that a significant safety problem existed and was not being addressed, it reserves the right to take appropriate action.

NOTE: The statement by an organisation that an incident is undergoing, or has undergone, a MEMS investigation, without any additional information provided to explain why the incident occurred, would not normally be an adequate basis for an MOR closure.

4.1.5 Organisations are encouraged to share their MEMS results with the CAA and with other maintenance organisations. It is hoped that by sharing such data the CAA and industry can jointly develop a better understanding of maintenance error causation and develop more focused human factors strategies. However, it is appreciated that some information in a MEMS may be considered sensitive to the organisation affected, and may need to be de-identified before being shared with other organisations.

5 FURTHER INFORMATION

5.1 More detailed guidance information, including where to obtain free MEMS software, is included in CAP 716 Issue 2.

5.2 Maintenance Organisations requiring further information or advice on how to establish a Maintenance Error Management System should contact their CAA Survey Department local Regional Office;

or:

Survey Department,
Chief Surveyor’s Office,
CAA

Aviation House
Gatwick Airport South
West Sussex
RH6 0YR
Tel: 01293 573366
Fax: 01293 573984

6 CANCELLATION

This Notice cancels Airworthiness Notice No. 71, Issue 2, dated 21 March 2005, which should be destroyed.



No. 73
Issue 4
21 March 2005

Corrosion of Aircraft Structures

- 1** Recent aircraft experiences have reaffirmed the problems that corrosion can pose to the airworthiness of transport aircraft. The more vulnerable aircraft are those which are 'high time' (age beyond half their original design life aim) when corrosion in conjunction with fatigue can pose serious airworthiness hazards. However, corrosion can also develop soon after an aircraft has entered service with similar consequences.
- 2** Deterioration in material thickness of more than 50% and cracking of airframes induced by corrosion have been found shortly after aircraft have been declared airworthy following a major check in accordance with the maintenance schedule.
- 3** Non-destructive inspection (NDI) techniques have developed significantly over the last decade so that corrosion not readily detectable visually, such as within joints and between faying surfaces, can be detected by eddy current, ultrasonic and mechanical impedance techniques, as appropriate. Development of NDI techniques is a continuing activity and the advice of the aircraft manufacturer should be sought for information on the most effective techniques to be used.
- 4** Aluminium alloys in particular are susceptible to intergranular corrosion (i.e. corrode along the grain boundaries within the metal), thus the removal of superficial products of corrosion followed by reprotection is generally not an effective method of preventing further corrosion. Repair or replacement of the component may be required. All repairs necessitated by corrosive attack, of whatever nature, must be made to an approved repair scheme in accordance with the manufacturer's recommendations. Further information on corrosion is contained in CAP 562 'Civil Aircraft Airworthiness Information and Procedures' Leaflet 6-2.
- 5** Manufacturers' maintenance documentation is being updated to include corrosion control and prevention programmes, which give details of the areas most likely to suffer corrosion and the required maintenance actions. Poorly drained areas, the faying surfaces of joints, fuselage bilges, and structures concealed by sound proofing or hidden below freight bay floors, are typical of the areas liable to corrosive attack requiring particular attention.
- 6** The use of organic water-displacing and corrosion inhibiting compounds is advocated in corrosion control programmes. Normally the compounds approved for use and the areas of application are stated by the aircraft manufacturer. Operators or maintenance organisations applying other compounds have the responsibility to justify technically, to the CAA, the fitness for purpose of those they use. Furthermore, adequate procedures should be in place to ensure that the material procured by the operator or maintenance organisation consistently meets its specification. (See CAAIP Leaflet 11-22, Appendix 51-3).
- 7** The use of corrosion inhibitors does not negate the requirement for a comprehensive inspection as part of a corrosion control programme. Such programmes have mandatory status, see Generic Requirement No. 7 in CAP 747 – Mandatory Requirements for Airworthiness.

- 8** Operators and maintenance engineers are reminded of the continual need for vigilance to detect the onset of corrosion, particularly where ageing aircraft are concerned. Confirmed evidence of significant corrosion should be reported at once to the manufacturer and to the CAA.
- 9** **CANCELLATION** This Notice cancels Airworthiness Notice No 73 Issue 3, dated 29 October 2001, which should be destroyed

AIRWORTHINESS NOTICE**No. 74
Issue 6
21 March 2005****Airworthiness Concessions In Respect Of Foreign Built Aircraft**

1 INTRODUCTION From time to time UK operators find it necessary to apply to the CAA for concessions to cover the non-compliance of certain foreign built aircraft with the applicable requirements notified in Section 2, Part 4 of CAP 747, "Mandatory Requirements for Airworthiness". The requirements notified in CAP 747, Section 2, Part 4 are the measures that the CAA has applied in the UK in addition to the standards applied by EASA. These measures have been notified to the European Commission in accordance with Article 10.1 of Regulation 1592/2002. Following a review the Commission will decide whether to apply the notified measures throughout the European Union (EU), or to require that the measures are revoked. This Airworthiness Notice 74 concerns concessions against these notified items only. It is not applicable to concessions against requirements applied by EASA. The reasons why applications for concessions are made include:

- (a) Aircraft being purchased and placed on the UK Register at short notice.
- (b) Aircraft being dry leased (see Note 1) on a relatively long term basis (e.g. 12 months or more), but required in service before all necessary modifications can be embodied.
- (c) Aircraft being dry leased on a short term basis (e.g. 6 months), for which the lead time on parts procurement may render compliance difficult.

NOTE: (1) "Dry lease" refers to those aircraft under operational control of a UK operator (i.e. subject to a direction under Article 151 of the ANO). Such aircraft are required to meet all applicable requirements.

NOTE: (2) Aircraft on 'wet lease', i.e. under the control of the lessor operator, are considered the responsibility of the State in which they are registered and by whom they are operated.

This Notice summarises the criteria which will normally be applied by the CAA in determining whether or not, in a particular case, a concession should be granted.

2 AEROPLANES WITH A PROVEN AND SATISFACTORY RECORD

2.1 Definition Aeroplanes which, according to their class, satisfy the criteria in Appendix 1 are considered to have a proven and satisfactory record.

2.2 Policy on Concessions The aeroplane must normally be of a kind Type Certificated in the European Union (EU) and in principle be in compliance with the requirements of CAP 747. However, subject to the criteria set out in Appendix 2 of this Notice, the CAA will give consideration to granting concessions against compliance with individual requirements notified in Section 2, Part 4 of CAP 747. Having regard to the record of the type, it will normally be possible to consider granting concessions against certain CAP 747 requirements for up to 6 months and, for large aeroplanes with more than 50 million hours of satisfactory service experience, this period may be increased.

3 AEROPLANES OTHER THAN WELL PROVEN TYPES AND HELICOPTERS

3.1 Definition Aeroplanes other than those meeting the criteria of Appendix 1, and helicopters.

- 3.2 **Policy on Concessions** The aircraft must normally be of a kind Type Certificated in the EU and in principle be in compliance with the Requirements of CAP 747. Requests for concessions will be expected to be clearly justified in the light of the considerations in Appendix 2. Where concessions are granted in respect of CAP 747 requirements they will be of limited duration and will not, under normal circumstances, exceed 6 months in duration.
- 4 CANCELLATION** This Notice cancels Airworthiness Notice No. 74, Issue 5, dated 23 October 2000, which should be destroyed.

AIRWORTHINESS NOTICE No. 74**Appendix 1***Issue 3**5 November 1993***Aeroplanes Considered to have a Proven and Satisfactory Record**

MTWA kg	Minimum Service Experience – Hours	Average Fatal Accident Rate	Examples
Not Exceeding 5700	2 million	Appreciably less than 10 per million hours	Beech 90, 99 DHC-6 Embraer Bandeirante
Exceeding 5700	20 million	Not exceeding 1 per million hours	Boeing 727 Boeing 737 Boeing 747 Douglas DC-9/MD-80 Douglas DC10/MD 11

AIRWORTHINESS NOTICE No. 74**Appendix 2***Issue 3**21 March 2005***Criteria Applied by CAA When Considering Concessions Against UK Certification Requirements**

- 1** Concessions will be considered for up to six months on any one aircraft, and this period may be extended where service experience exceeds 50 million hours.
- 2** In considering whether a concession should be granted, account will be taken of the accident record with respect to the Additional Requirement or other requirement in question.
- 3** The operator's obligations to comply with operational requirements may constrain the scope of any Concession. Amongst other items:
 - (a) Aircraft Performance Information
 - comply with UK standards in important respects.
 - (b) Handling, flight deck layout, instrumentation, flight management systems and warnings
 - differences within a fleet to be acceptable may require dedicated crews and relevant training.



**No. 77
Issue 3
25 October 2002**

Counter/Pointer Type Instruments (Altimeters)

- 1** The United Kingdom Altimeter Committee in 1965 concluded the best altitude presentation was provided by the counter/pointer type instrument. The CAA is satisfied that subsequent experience has supported this conclusion.
- 2** In the case of turbo-jet-engined aircraft, in which hazardous misreading of altimeters is more likely to occur, it is desirable to eliminate reliance on the less satisfactory types of presentation. Therefore, subject to the proviso of paragraph 3, all turbo-jet-engined aircraft of over 5700 kg (12 500 lb) all up weight must have as a minimum one of the following:-
 - (a) One approved counter/pointer type instrument visible to both crew members, in addition to their normally positioned altimeters, or
 - (b) One approved counter/pointer type instrument in the Captain's normal altimeter position, in addition to the existing altimeters at other crew stations.
- 3** The following exception to paragraph 2 is permissible:

The CAA, whilst preferring the arrangement described in paragraph 2, will continue to accept drum/pointer altimeters where these are standard equipment on existing aircraft. (For newly designed aircraft drum/pointer altimeters will not be accepted.)
- 4** This Airworthiness Notice is only applicable to aircraft operators who operate in accordance with the Air Navigation Order (ANO). Those aircraft operators who operate or have elected to comply with JAR-OPS1, must fulfil the requirements of JAR-OPS1.652(c).
- 5** **CANCELLATION** This Notice cancels Airworthiness Notice No. 77 Issue 2, dated 29 October 2001, which should be destroyed.

The Mandatory Occurrence Reporting Scheme – Changes

1 INTRODUCTION

The MOR scheme has changed. The changes have come about because a European Directive (DIRECTIVE 2003/42/EC of the European Parliament and of the Council of 13 June 2003 on occurrence reporting in civil aviation) requires all EU Member States to operate an Aviation Occurrence Reporting system in accordance with the provisions of the Directive.

2 UK LAW

The UK has implemented the Directive by transposing it into the Air Navigation Order 2005. The new Mandatory Occurrence Reporting requirements are contained in Article 142 of the Air Navigation Order 2005, replacing Article 117 in the Air Navigation Order (2000).

3 APPLICABILITY

There are no changes to applicability insofar as airworthiness issues are involved. Article 142 requires occurrence reporting for all public transport aircraft and all (excluding those with Permits to Fly) turbine engine aircraft.

'Public transport aircraft' means aircraft flying, or intended by the operator to fly, for the purpose of public transport (see Air Navigation Order 2005, Article 157).

4 CAP 382

A new edition of CAP 382 (The Mandatory Occurrence Reporting Scheme - Information and Guidance) has been issued.

5 ADDITIONAL INFORMATION

Any queries should be addressed to:

Safety Investigation and Data Department
Civil Aviation Authority
Safety Regulation Group
Aviation House
Gatwick Airport South
West Sussex
RH6 0YR

6 CANCELLATION

This Notice cancels Airworthiness Notice No. 78, Issue 2 dated 29 October 2001, which should be destroyed.

AIRWORTHINESS NOTICE

**No. 85
Issue 1
23 October 1998**

CAA Approvals – Non Transferability

- 1 INTRODUCTION** This Notice provides advice and information to CAA Approved Organisations concerning the legal implications and CAA approvals policy relating to company name changes and/or the transfer of business and assets to another company.
- 2 GENERAL** The present business climate is resulting in increasing numbers of CAA Approved Organisations either changing their name and/or transferring their business and assets to another company. It is essential therefore that registered companies advise the CAA of such changes before they take place, and understand the impact the changes may have upon continuation of their CAA approval.
NOTE: Under the Civil Aviation Act, no information furnished to the CAA under the ANO shall be disclosed by the CAA except under the specific provisions of the Act.
- 3 CAA APPROVALS**
 - 3.1 CAA Approval is granted to a legal entity and, in the case of an organisation, this is clearly identified with its company registration number. A CAA Approval once granted is not transferable from one registered company to another.
 - 3.2 When the business and assets of a CAA Approved Organisation (company A) are sold or transferred to another company (company B), the CAA Approvals issued to company A become null and void at that time and no further design or release certifications may be made. If company B is not already approved by the CAA, for it to operate as a CAA Approved Organisation, it will be necessary to make an application for a new approval to the CAA. Since each CAA Approval is identified by a unique reference number, the issue of a new CAA approval will necessitate amendment of company documentation to show the new number. In many cases the new CAA approval can be issued in an expeditious manner providing no other changes have occurred in the company which would affect the approval. If company B already holds a CAA approval, it may be necessary for it to apply to vary the approval to assimilate the activities of company A and in such circumstances advice should be sought from the CAA prior to the acquisition.
 - 3.3 Where a company changes its name but its company registration number remains the same, the legal entity has not changed and therefore the existing CAA approval can continue, using the same approval number, providing adequate prior notice is given.
 - 3.4 In either case, a CAA Certificate of Approval will need to be issued to approve the new company or record the change of name. Therefore, it is important for organisations to contact the CAA at the earliest opportunity when a change of status as detailed above is to take place. It should be noted that an appropriate Certificate of Incorporation (if applicable) will be required as evidence of the change before a new approval certificate can be issued.
 - 3.5 Any fees associated with the investigation of approvals and the issue of new documents will be in accordance with the current CAA Scheme of Charges.

AIRWORTHINESS NOTICE

No. 86
Issue 6
23 October 2000

Communications On Safety Matters

- 1** From time to time people have occasion to write to the CAA or one of its officials about a significant safety matter. It is clearly important that there should be some way in which senders can verify that such information has been received by the CAA and equally important that the CAA should know that such information has been sent.
- 2** It is the intention of the CAA that any item of correspondence is acknowledged within 7-10 days. If the sender does not receive a satisfactory indication that the communication has been received by the CAA within that time they should make further direct contact with the addressee.
- 3** Occurrence Reports (Mandatory or Voluntary) are not normally acknowledged individually. Receipt by the Authority is, however, acknowledged by inclusion in the monthly Occurrence List widely circulated to all organisations participating in the Occurrence Reporting System. Any Reports submitted on a confidential basis will be individually acknowledged when a means of contact is provided.
 - 3.1** Any queries relating to Occurrence Reports should be directed to the Safety Investigation and Data Department:
Telephone: Crawley (01293) 573220
Telex: 878753
Facsimile: Crawley (01293) 573972
- 4** If after further contact with the addressee there is still doubt that the item of correspondence has been received, the sender should contact the following as appropriate:
For matters relating to Airworthiness and Operational Safety:
Group Director Safety Regulation
Safety Regulation Group
Aviation House
Gatwick Airport South
West Sussex RH6 0YR
Telephone: Crawley (01293) 573078 Telex: 878753
Facsimile: Crawley (01293) 573999
 - 4.1** For matters relating to the National Air Traffic Services:
Chief Executive
National Air Traffic Services Limited
Room T1504
One Kemble Street
London WC2B 4AP
Telephone: 020 7832 5900
- 5** **CANCELLATION** This Notice cancels Airworthiness Notice No. 86, Issue 5, dated 21 July 1995, which should be destroyed.

AIRWORTHINESS NOTICE

No. 90
Issue 2
29 October 2001

Maximum Total Weight Authorised For Agricultural Operations And Other Aerial Applications

- 1** CAA policy on United Kingdom certification of aeroplanes which are intended to be used for agricultural purposes (hereinafter referred to as agricultural aeroplanes) has, hitherto been to certificate these aeroplanes at the Maximum Total Weight Authorised (the Normal MTWA) at which compliance has been established with the national airworthiness requirements of the country of origin.
- 2** Certain countries, notably USA, Canada, Australia and New Zealand, permit agricultural aeroplanes to be operated at weights in excess of the Normal MTWA, the extent of excess being determined by the minimum value of manoeuvring load factor at which it is considered that airworthiness structural requirements can be met when account is taken of the typical pattern of loading appropriate to agricultural operations.
- 3** The CAA is, as a result of considerable investigation, satisfied that a capability for meeting all airworthiness structural requirements at a minimum positive manoeuvring load factor equal to 3.0 coupled with operational limitations appropriate to operating at weights exceeding the Normal MTWA, is acceptable for agricultural operations, and will not result in a significant increase in the risk of structural failure. The CAA will require evidence to substantiate the continued validity of any fatigue life limitations (or to assess the need to specify a fatigue life) for the particular aeroplane type.
- 4** In respect of aeroplanes of United Kingdom or foreign origin, application for an increase in MTWA for Agricultural Operations may be made to the CAA on Form AD 282, for approval as a Major Modification.
 - 4.1 The MTWA for Agricultural Operations shall not exceed whichever is the least of (a) to (d) and shall be subject to the conditions of paragraph 4.2.
 - (a) The weight at which compliance with specific airworthiness structural requirements can be established at a limit positive manoeuvring load factor equal to 3.0.

NOTE: In the absence of evidence from the aeroplane designer substantiating a greater weight, this weight will be limited to 120% of the Normal MTWA (or 130% of the Normal MTWA for aeroplanes originally certificated as utility category or semi-aerobatic aeroplanes).
 - (b) The weight at which a minimum gradient of climb of 4.5% in the take-off configuration can be achieved at the altitude and temperature at the take-off surface.
 - (c) The maximum weight recommended by the aeroplane designer for agricultural operations.
 - (d) The weight at which compliance can be established to the satisfaction of the CAA with those flight handling requirements applicable at initial certification in the country of origin.
 - 4.2 The conditions and further limitations associated with the MTWA for Agricultural Operations are as follows:-
 - (a) Any increase in Maximum Landing Weight shall be substantiated by the aeroplane designer.

- (b) Operation at weights in excess of the Normal MTWA shall be restricted to those flights in the course of which aerial application is to be carried out. The Normal MTWA shall not be exceeded on flights made for other purposes including ferrying or positioning the aeroplane.
 - (c) Provision shall be made for rapid jettisoning of the hopper contents and shall be placarded.
 - (d) Information on the effect of the increase of weight on the fatigue life of the aeroplane, in the form of a fatigue analysis, shall be provided by the aeroplane designer. Failing this the applicant shall provide evidence of the operating hours achieved by high-time aeroplanes of the same type, together with the associated operating weights, from which the CAA will assess the need for the setting of a fatigue life.
 - (e) The use of wing-flaps shall be restricted to take-off and landing, unless en-route use at the increased weight is substantiated by the aeroplane designer.
 - (f) The Never Exceed Speed, V_{NE} , at the increased weight shall be equal to the Design Manoeuvring Speed, V_A , established for the Normal MTWA, and shall be placarded.
 - (g) The flying qualities shall be established, to the satisfaction of the CAA, to be adequate for the role, when the aeroplane is operated in accordance with these limitations.
 - (h) If the overload condition requires particular care to remain within the allowable centre-of-gravity limits, or if ballasting is required, then appropriate loading instructions and placards shall be provided.
 - (i) *Intentionally left blank*
 - (j) Appropriate amendments shall be made to the Approved Maintenance Schedule to take account of any additional inspections and life limitations recommended by the aeroplane designer or required by the CAA appropriate to agricultural overload.
- NOTE:** If as a result of the weight increase the aeroplane exceeds 2730 kg MTWA, maintenance may continue to be in accordance with the provisions of the Light Aircraft Maintenance Schedule.
- (k) Where the aeroplane is converted from an agricultural overload role to a passenger-carrying role, such inspections, in addition to those prescribed in the Approved Maintenance Schedule (e.g. LAMS), as shall be agreed by the CAA shall be carried out before the aeroplane is operated for the carriage of passengers.
 - (l) All prescribed aeroplane and engine limitations, other than those specifically varied in accordance with (a) to (j), shall remain in force.
 - (m) Appropriate amendments to the Manual(s) associated with the Certificate of Airworthiness (e.g. Flight Manual) shall be promulgated.

5 Application may also be made for an increase in MTWA for non-agricultural aerial application operations. Approval may be given subject to the foregoing conditions and limitations, provided that the risk to third parties is no greater than in a typical agricultural case.

6 **CANCELLATION** This Notice cancels Airworthiness Notice No. 90, Issue 1, dated 1 April 1983, which should be destroyed.

AIRWORTHINESS NOTICE**No. 98
Issue 13
29 March 2006****Use Of Motor Gasoline (MOGAS) In Certain Light Aircraft****1 INTRODUCTION**

Because of the growing difficulties experienced in obtaining Aviation Gasoline (Avgas), particularly in small quantities, and the ready availability of Motor Gasoline (MOGAS), CAA were asked to consider permitting the use of motor gasoline in general aviation aircraft. It has been agreed to permit the use of MOGAS in certain single-engined aircraft using low compression ratio unsupercharged engines. (See Appendix, Schedule 1). In such aircraft any adverse effects of using MOGAS are likely to be minimal and, if present, are likely to become apparent over a sufficiently long period to enable them to be controlled satisfactorily by normal maintenance procedures. Accordingly, the CAA has issued an Exemption, in the terms set out in the Appendix to this Notice, from compliance with the fuel specifications and associated limitations set out in the Official Manuals forming part of the Certificate of Airworthiness. CAA will give consideration to individual applications in respect of aircraft not listed in the Schedule. (See paragraph 2.3). Fuel obtained direct from a filling station forecourt may be acceptable in accordance with the provisions of Airworthiness Notice No. 98A.

CAUTION: BS 7800:2000 (unleaded) MOGAS or MOGAS of any standard other than BS 4040 is not permitted by either this Notice No. 98 or Airworthiness Notice No. 98A.

2 GENERAL

2.1 It should be noted that although CAA is satisfied that the listed aircraft/engines may be operated with adequate safety on MOGAS, provided the limitations* are observed, CAA takes no responsibility for infringement of manufacturer's warranty, accelerated deterioration of the engine or airframe components, or any other long term deleterious effects.

NOTE: * With regard to the limitation on fuel temperature, it may be assumed that the temperature of the fuel in the tank prior to the commencement of the flight is less than 20°C unless the ambient temperature has been in excess of this temperature for some hours, or the aircraft has been standing in continuous direct sunshine.

2.2 Because of likely differences between MOGAS and AVGAS, the following precautions are to be taken:

- (a) Use only freshly obtained supplies; avoid long storage in the aircraft fuel tank.
- (b) If the aircraft has been standing for 24 hours or longer, check fuel for water.
- (c) As carburettor icing is more likely when using MOGAS, particular attention should be paid to the use of carburettor hot air. This should include:
 - making sure, during the pre-take-off checks, that a good RPM drop is obtained when hot air is selected,
 - intermittent selection of hot air in flight whether or not the symptoms of loss of power are experienced.
- (d) In the course of the daily check and other routine inspections, pay particular attention to non-metallic fuel pipes and seals for signs of leaks or deterioration.

- (e) After any prolonged period of heat soak at low fuel flow (e.g. hot day ground idling) establish the ability to maintain full power before commencing a take-off.

2.3

Applications (which must be with the owner's written consent) for use of MOGAS in aircraft not listed in the Appendix, Schedule 1, should be made to CAA, Safety Regulation Group, Aviation House, Gatwick. The CAA will need to be satisfied on the following aspects. The applicant should either provide authenticated information substantiating compliance or apply for a Major Modification for which the appropriate charges will be made.

- (a) The engine should have been either type certificated for operation with minimum grade fuel of 80 MON or less, or test evidence should be provided establishing that the engine has an adequate margin from detonation under the most adverse operating conditions.
- (b) There should either be positive pressure throughout the fuel system under all normal operating conditions, or testing of the system should be carried out to a schedule agreed by the CAA, to show freedom from vapour locks.
- (c) Non-metallic pipes, seals, etc., in the fuel system should be unlikely to be seriously affected by MOGAS.

NOTE: Where composite materials, e.g. fibre glass, are used in the construction of fuel tanks, the CAA will require evidence that these materials are compatible with MOGAS.

- (d) There should be no doubts regarding the efficacy of the protection against carburettor icing.
- (e) Any specific prohibition of the use of MOGAS in the aeroplane or engine manuals should be brought to the attention of the CAA, together with a copy of the relevant page of the manual.

3

RECORDING USE OF MOGAS All operating times with fuel containing 25% or more of MOGAS must be recorded in the airframe log book, and block records must be transferred at appropriate intervals into the engine log book(s).

4

CANCELLATION This Notice cancels Airworthiness Notice No. 98, Issue 12, dated 16 March 1995, which should be destroyed.

AIRWORTHINESS NOTICE No. 98**Appendix 1***Issue 2**29 March 2006***Air Navigation Order 2005 Exemption**

- | **1** The Civil Aviation Authority, in exercise of its powers under Article 153 of the Air Navigation Order 2005, hereby exempts the aircraft set out in Schedule 1 hereto, with engines as listed therein, from the provisions of Article 8(1) of the said Order to the extent necessary to enable it to fly using four star Motor Gasoline to BSI specification BS 4040 : 2001. Unless it is known, on a particular flight, that the proportion of Motor Gasoline in the aircraft's fuel is less than 25%, the aircraft shall be deemed for the purpose of this Exemption to be using Motor Gasoline.
- | **2** This Exemption is subject to the following conditions:
- | (a) No Motor Gasoline fuel shall be used for flight unless it has been proven to comply with BS 4040 : 2001 and Schedule 2 of this Notice No 98.
 - (b) No flight shall be made pursuant to this Exemption unless either :
 - (i) the temperature of the fuel in the tank prior to the commencement of the flight may reasonably be assumed to be less than 20°C and the aircraft is flown below a pressure altitude of 6000 ft, or
 - (ii) the written permission of the CAA has been obtained to operate to different limitations and that the terms of the permission are complied with.
 - (c) No flight shall be made pursuant to this Exemption unless the limitations pursuant to sub-paragraph (b) above due to the use of Motor Gasoline are set out on a placard which is affixed in a conspicuous position in the flight crew compartment of the aircraft.
 - (d) In respect of every flight pursuant to this Exemption, there shall be endorsed in the aircraft log book maintained in respect of the aircraft, a statement that the flight was undertaken pursuant to this Exemption. Block records must be transferred to the engine log book at appropriate intervals.
- | **3** The Exemption dated 21 July 1995 is hereby revoked.
- 4** This Exemption shall have effect from the date hereof until revoked.



Signed for the Civil Aviation Authority Dated 29 March 2006

AIRWORTHINESS NOTICE No. 98**Schedule 1***Issue 3**29 March 2006*

The following aircraft may use four star Motor Gasoline to BSI specification BS 4040 : 2001 in accordance with Airworthiness Notice No. 98.

AIRCRAFT**ENGINE**

Adam Loisir	Continental A65
Aeronca C3	JAP 100 J99
Aeronca 100	JAP 100 J99
Aeronca L16	Continental C85
Aeronca 7BCM	Continental C85
Aeronca 7AC	Continental A65 or A75
Aeronca 11 AC	Continental A65
Aeronca 7FC	Continental A75
Aeronca 15AC	Continental C-145
Aeronca 11CC	Continental C85
Andreasson BA4B	Continental 0-200-A
Arrow Sport A2	Le Blond 90
Auster 3	Gipsy Major 1
Auster 4	Lycoming 0-290
Auster 5	Lycoming 0-290-3, 0-320
Auster 5D	Gipsy Major 1 or 1F
Auster 5J1 Autocrat	Cirrus Minor 2
Auster 5J1B Aiglet	Gipsy Major 1
Auster 5J2 Arrow	Continental C75
Auster 5J4	Cirrus Minor 1
Auster 5J4/100	Continental 0-200 A
Auster 6A	Gipsy Major 10 (All variants of Mk. 1)
Auster D4/108	Lycoming 0-235-C
Auster D5/J2	Continental A75, Cirrus Minor 1
Auster D5/JSA	Continental A75, Cirrus Minor 1
Auster J1N	Gipsy Major 1C or 1F
Auster J5B Autocrat	Gipsy Major 1
Auster J5F Aiglet Trainer	Gipsy Major 1 or 1F
Auster J5G	Blackburn Cirrus Major 3
Auster J5L	Gipsy Major 10 Mk. 2
Auster J5P	Gipsy Major 10 Mk. 2
Auster J5Q Alpine	Gipsy Major 1
Auster J5V	Lycoming 0-320-B
Auster D6-180	Lycoming 0-320-A
Avions Mudry CAP 10B	Lycoming AE10-360-B

Baby Lakes	Continental A65-8
Beagle A61 Series 2	DH Gipsy Major 10 Mk. 1-1
Beagle A109 Airedale	Lycoming 0-360-A
Beagle Auster D5-180	Lycoming 0-360-A
Beagle Pup 100	Continental 0-200-A
Beagle Pup B121/ 2	Lycoming 0-320-A
Beagle Terrier A61	Gipsy Major 10 (All variants of Mk. 1 and Mk. 2)
Bensen B8	VW
Bolkow Junior	Continental 0-200A
BA Swallow	Pobjoy, Niagara, Cateract
Bell 47G-2	Lycoming VO-435-A1D
Bell 47G4-A	Lycoming VO-540-B
Bell 47J-2A	Lycoming VO-540-B
Bellanca Citabria	Lycoming 0-320-A
Bellanca 7ACA	Continental C-85
Bellanca 8GCBC	Lycoming 0-360-C
Benes Sokol	Walter Minor
Boeing Stearman A75N1	Continental W670 6A
Brochet M B84	Continental A65
Brooklands Mosquito	VW
Cadet Motor Glider	VW
Campbell Cricket	VW
Cassutt Racer 111 M	Continental C90
CEA DR221	Lycoming 0-235-C
CEA DR250/160	Lycoming 0-320-D
Cessna 120	Continental C90, Continental C85
Cessna 140	Continental C85
Cessna 150	Continental 0-200-A
Cessna 150E	Continental 0-200-A
Cessna 150M	Continental 0-200-A
Cessna F150	Continental 0-200-A
Cessna F150H	Continental 0-200-A
Cessna F150K	Continental 0-200-A
Cessna F150L	Continental 0-200-A
Cessna F150M	Continental 0-200-A
Cessna FA150K	Continental 0-200-A
Cessna FRA-150L	Continental 0-240-A
Cessna 152	Lycoming 0-235-L
Cessna F152	Lycoming 0-235-L
Cessna 170B	Continental 0-300-A
Cessna 172	Continental 0-300-A
Cessna 172A	Continental 0-300-C or -D
Cessna 172B	Continental 0-300-C or -D
Cessna 172E	Continental 0-300-C or -D

Cessna 172H	.. .. .	Continental O-300-D
Cessna 172M	.. .. .	Lycoming O-320-E
Cessna 172P	.. .. .	Lycoming O-320-D
Cessna F172E	.. .. .	Continental O-300-D
Cessna F172F	.. .. .	Continental O-300-D
Cessna F172H	.. .. .	Continental O-300-D
Cessna F172L	.. .. .	Lycoming O-320-E
Cessna F172M	.. .. .	Lycoming O-320 E
Cessna 175	. . . . .	Continental GO-300
Cessna 177	. . . . .	Lycoming O-320-E
Cessna 180	. . . . .	Continental O-470-J or -L
Cessna 182G	.. .. .	Continental O-470-R
Cessna 195	. . . . .	Jacobs 755S
Chilton DW1	. . . . .	Walter Mikron, Lycoming O-145-A2
Christen A1 Husky	.. .. .	Lycoming O-360-C
Coates Swalsong	. . . . .	Continental C90
Comper Swift CL7	.. .. .	Pobjoy R, Niagara, Cateract
Colibri MB2	. . . . .	VW
Cosmic Wind	.. .. .	Continental C90
Currie Wot	.. .. .	Lycoming O-145A Walter Mikron, Pobjoy R
DH 6OM, 6OG, Gipsy Moth	. . . . .	DH, Gipsy 1, Curtis Wright Gipsy 1
DH 80A Puss Moth	.. .. .	Gipsy Major 1 or 1C
DH 82A (Aust) Tiger Moth	.. .. .	Gipsy Major 1
DH 82A	.. .. .	Gipsy Major 1 or 1C
DH 82A Tiger Moth	.. .. .	Gipsy Major 1F
DH C1 Chipmunk 21	.. .. .	Gipsy Major 10 Mk 2
DH C1 Chipmunk 22 & 22A	.. .. .	Gipsy Major 10 Mk 2
DH C1 Chipmunk 22 (Lycoming)	.. .. .	Lycoming O-360-A
DH 82A Seaplane	. . . . .	Gipsy Major 1
DH 83 Fox Moth	. . . . .	Gipsy Major 1
DH 85 Leopard Moth	.. .. .	Gipsy Major 1 or 1C
DH 87 Hornet Moth	.. .. .	Gipsy Major 1, 1C or 1F
DH Moth Minor	.. .. .	Gipsy Minor
DHC-2 Beaver	.. .. .	Pratt & Whitney R985-AN1
Druine Condor	.. .. .	Continental C90, O-200A
Druine Condor D62B	.. .. .	Rolls-Royce O-240-A
Druine Condor D62C	.. .. .	Rolls-Royce O-240-A
Druine D5 Turbi	.. .. .	Walter Mikron III
Druine Turbulent	.. .. .	VW
Druine Turbi	.. .. .	Continental A65, Walter Mikron II
E. A. A. Biplane	.. .. .	Continental C75
Eakins Airbuggy	.. .. .	VW
Evans VP-1	.. .. .	VW
Evans VP-2	.. .. .	VW, Continental A65

Falconair F9	VW
Falconair F11	Continental 0-200A
Fokker E111 Replica	Continental A75
Fokker DV111 Replica	Warner Scarab
Fournier RF-3	VW
Fournier RF-4	VW
Fournier RF-5	Limbach 1700E
Fournier RF6B-100	Continental 0-200 A
Fournier SFS 31 Milan	VW
Fred Series 2	VW
Great Lakes	Warner Scarab
Gulfstream GA7	Lycoming 0-320-D
Hiller UH-12E	Lycoming V0-540-B
Hughes 269A Helicopter	Lycoming H10-360-A
Issacs Fury	Lycoming 0-290
Issacs Spitfire	Continental 0-200A
Jodel D9, 92	VW
Jodel D11	Continental C90
Jodel D112	Continental A65
Jodel D117 117A	Continental C90
Jodel D119	Continental C90
Jodel D120	Continental C90
* Jodel D140A	Lycoming 0-360 A
NOTE: * Front fuel tank must be used for take-off, initial climb and landing.	
Jodel 150	Continental 0-200 A
* Jodel DR1050	Continental 0-200 A
NOTE: * Front fuel tank must be used for take-off, initial climb and landing.	
Jodel DR1051	Potez 4E20A
Jurca Tempete	Lycoming 0-290-D, Continental C90
Jurca Sirocco	Lycoming 0-290 D
Kittiwake 1	Lycoming 0-290-D, Continental 0-200A
Kittiwake 2	Continental 0-200A
KZ 8	Gipsy Major 1
Luscombe 8A	Continental A65
Luscombe 8E	Continental C85
Luscombe 8F	Continental C90
Luton Minor	JAP, J99, VW, Lycoming 0-145A
Luton Minor 111	Continental 0-200A
Luton Major LA5	Walter Mikron, Continental C90, Continental 0-200A

Manning Flanders	.. .. .	Continental C75
Minicab GY20, GY201	.. .. .	Continental A65
Minicab GY30	.. .. .	Continental C90
Minicab JB-01,	.. .. .	Continental C90, Continental 0-200-A
Midget Mustang	.. .. .	Continental C85, C90
Morane N Replica	.. .. .	Continental C90
Morane Saulnier MS 892A	.. .. .	Lycoming 0-320-E
Morane Saulnier MS 893A	.. .. .	Lycoming 0-360-A
Morane Saulnier MS 893E	.. .. .	Lycoming 0-360-A
Morane Saulnier 100 ST	Continental 0-200-A

Nord NC 854, 854S, 858S	Continental A65, Continental C90
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Pazmany PL4A	Continental A65
* Piel Emeraude CP 301B	Continental C90
* Piel Emeraude CP 301A	Continental 0-200-A or C90
* Piel Emeraude CP 301B	.. .. .	Continental 0-200-A
* Piel Emeraude CP 301C	.. .. .	Continental C90

NOTE: * Front fuel tank must be used for take-off, initial climb and landing.

Piper J2, J3C 65, L4A C85, C90	.. .. .	Continental A65, C85, Continental C90
Piper J4A	.. .. .	Continental A65
Piper PA12	.. .. .	Lycoming 0-290
Piper PA15	.. .. .	Lycoming 0-145A
Piper PA15	.. .. .	Continental 0-200-A
Piper PA16	.. .. .	Lycoming 0-235-C
Piper PA16	.. .. .	Lycoming 0-290-D
Piper PA17	.. .. .	Continental A65
Piper PA17	.. .. .	Continental C85
Piper PA18	.. .. .	Lycoming 0-360-A
Piper PA18 Cub	.. .. .	Lycoming 0-290, 0-320-A
Piper PA18-135	.. .. .	Lycoming 0-290-D, 0-320-A
Piper PA18-150	.. .. .	Lycoming 0-360 A
Piper PA19	.. .. .	Continental C90
Piper PA20	.. .. .	Lycoming 0-290
Piper PA22-108	.. .. .	Lycoming 0-235-C
Piper PA22-135	.. .. .	Lycoming 0-290
Piper PA22-150	.. .. .	Lycoming 0-320-A
Piper PA22-160	.. .. .	Lycoming 0-320-B
Piper PA28-140	.. .. .	Lycoming 0-320-E
Piper PA28-151	.. .. .	Lycoming 0-320-E
Piper PA28-160	.. .. .	Lycoming 0-320-B
Piper PA28-180	.. .. .	Lycoming 0-360-A
Piper PA28R-180	.. .. .	Lycoming 10 360-B
Piper PA28R-200	.. .. .	Lycoming 10 360-C

Piper PA28-181	.. .. .	Lycoming 0-360-A
Piper PA38-112	.. .. .	Lycoming 0-235-L
Pitts S1C	.. .. .	Lycoming 0-320-A
Pitts S1D	.. .. .	Lycoming 0-360-A
Rallye MS880B	.. .. .	Continental 0-200-A
Rallye MS883	.. .. .	Lycoming 0-235-C
Rallye 885	.. .. .	Continental 0-235-C
Rallye 885	.. .. .	Continental 0-300-A
Rallye R2100	.. .. .	Lycoming 0-235-H
Rallye 100ST	.. .. .	Continental 0-200-A
Rallye 110ST	.. .. .	Lycoming 0-235-L
Rallye 150ST	.. .. .	Lycoming 0-320-E
Rallye 180T	.. .. .	Lycoming 0-360-A
Rallye ST150	.. .. .	Lycoming 0-320-E
Rallye TB9	.. .. .	Lycoming 0-320-D
Rand KR2	.. .. .	Volkswagen
Rearwin Cloudster	.. .. .	Royce 7G
Replica SE5A	.. .. .	Continental C90
Replica SE5A	.. .. .	Continental 0-200A
Replica WAR Sea Fury	.. .. .	Continental 0-200A
Robin HR200/100	.. .. .	Lycoming 0-235-H
Robin 1180TD Aiglon	.. .. .	Lycoming 0-360-A
Robin 2100A	.. .. .	Lycoming 0-235-H
Robin R2112 Alpha	.. .. .	Lycoming 0-235-L
Robinson R22 Helicopter	.. .. .	Lycoming 0-320-A
Rollason Beta	.. .. .	Continental C90
Rutan Varietze	.. .. .	Continental 0-200A
Scheibe SF3A/C	.. .. .	Continental C90
Scintex CP 301-C2	.. .. .	Continental C90
Scintex CP1310	.. .. .	Continental 0-200
Shield Xyla	.. .. .	Continental A65
Sipa 91, 901, 902, 903	.. .. .	Continental C90, C85
Socata TB9	.. .. .	Lycoming 0-320-D or 0-320-E
Socata TB10	.. .. .	Lycoming 0-360-A
Sonerai 1, 11	.. .. .	VW
Sopwith Dove	.. .. .	Le Rhone
Sopwith Pup	.. .. .	Le Rhone
Sopwith Tabloid	.. .. .	Continental C90
Sparton Arrow	.. .. .	Cirrus Hermes 2
Stampe SV4A	.. .. .	Renault 4PO5
Stampe SV4	.. .. .	Gipsy Major 10 Mk 1
Stampe SV4C	.. .. .	Renault 4PO3
Stitts Playboy	.. .. .	Continental A75

Stolp Starlet	Continental C90
Stolp V Star SA900	Continental 0-200-A
Storey TSR3	Continental C90
Taylorcraft Plus D	Continental C90, Cirrus Minor 1
Taylorcraft BC-12D	Continental A65
Taylorcraft F.19	Continental 0-200-A
Taylorcraft F.21	Lycoming 0-235-L
Taylor Monoplane	VW, JAP 100
Taylor Titch	Continental C85, C90, 0-200A
Thruvton Jackaroo	Gipsy Major 1
Tipsy Belfair	Walter Mikron
Tipsy Junior	Walter Mikron
Tipsy Nipper Mk1, Mk2, T66, RA45 Series 3	VW
Tipsy Trainer	Walter Mikron
Turner TSW	Lycoming 0-320-A
Volmer Sportsman	Continental C90, Pobjoy Niagara
Wittman Tailwind	Continental C90, 0-200-A
WAR FW 190	Continental 0-200A
Zlin 526	Walter Minor 6-III

NOTE: (1) In certain aircraft issued with a Permit to Fly the use of MOGAS is already permitted by the appropriate aircraft documents and these aircraft are not affected by this Notice.

NOTE: (2) Piper PA23-160 was included in Schedule 1 of AN 98 Issue 11 in error and is now deleted.

NOTE: (3) The following aircraft/engine combinations have been deleted from the list:

Grumman American AA1B Trainer	Lycoming 0-235-L2C
Gulfstream American AA5A	Lycoming 0-320-E
Gulfstream American AA5B	Lycoming 0-360-A
Piper PA28 Warrior	Lycoming 0-320-E3D

AIRWORTHINESS NOTICE No. 98**Schedule 2***Issue 2**29 March 2006*

1 Motor gasoline supplied to an aerodrome installation for use in general aviation aircraft must meet one of the following conditions:

1.1 It has been obtained from a company which has confirmed that it will give prior warning of any intention to change significantly the constituents of the fuel supplied.

1.1.1 Currently there are no companies giving such an undertaking.

1.2 A sample from each delivery (or from the bulk storage from which delivery was made) has been analysed by a competent analyst and the analysis supplied to a person authorised by CAA to accept such analyses. Fuel meeting BS 4040 : 2001 specification and with 40% or less aromatics, 10% or less olefines by volume, no alcohol or other substitute fuels and no additives other than those recognised for anti-oxidants and anti-knock purposes will normally be acceptable.

1.2.1 Those persons currently holding Authorisation/Approval by the CAA to accept analyses are as follows:

SGS United Kingdom Limited,
Rossmore Business Park,
Ellesmere Port,
South Wirral,
Cheshire
CH65 3EN AI/8947/84

ITS Testing Services (UK) Ltd.,
Caleb Brett,
Caleb Brett House,
734 London Road,
West Thurrock,
Essex,
RM20 3NL. AI/9201/89

Mr S J Sullivan,
Chief Chemist,
E W Saybolt & Co., (UK) Ltd.,
Oliver Road,
Riverside Estate,
West Thurrock,
Grays,
Essex
RM16 1ED. 9/97/260A

AIRWORTHINESS NOTICE

No. 98A
Issue 3
29 March 2006

Use Of Filling Station Forecourt Motor Gasoline (MOGAS) In Certain Light Aircraft

1 INTRODUCTION

1.1 Airworthiness Notice No. 98 introduced arrangements permitting the use of motor gasoline (MOGAS), but excluded the practice of using fuel obtained direct from a filling station forecourt. This restriction is lifted in respect of certain light aircraft classes and categories of Certification of Airworthiness, defined in this Airworthiness Notice. Accordingly, the CAA has issued two Exemptions in the terms set out in Appendices 1 and 2 to this Notice No. 98A. Aircraft which do not satisfy these conditions may be eligible for using MOGAS in accordance with Airworthiness Notice No. 98 or as a result of Modification action approved by the CAA.

CAUTION: BS EN228: 2004 and BS 7800:2000 (unleaded) MOGAS or MOGAS of any standard other than BS 4040 is not permitted by either this Notice No. 98A or Airworthiness Notice No. 98. (Refer to Airworthiness Notice No. 98B.)

1.2 To permit the use of BS 4040:2001 MOGAS from filling station forecourts, this Notice contains an Exemption from some of the requirements of Article 137 of the Air Navigation Order 2005 (as amended) subject to certain conditions. (See Appendix 2 to this Airworthiness Notice.)

2 GENERAL

2.1 It should be noted that although the CAA is satisfied that the qualifying aircraft/engines may be operated with adequate safety on alcohol free filling station forecourt fuel, provided the limitations* are observed, the CAA takes no responsibility for infringement of manufacturer's warranty, accelerated deterioration of the engine or airframe components, or any other long term deleterious effects.

NOTE: * With regard to the limitation on fuel temperature, it may be assumed that the temperature of the fuel in the tank prior to the commencement of the flight is less than 20°C unless the ambient temperature has been in excess of this temperature for some hours, or the aircraft has been standing in continuous direct sunshine.

2.2 Because of likely differences between filling station forecourt fuel and Avgas, the following precautions are to be taken:

(a) Test the fuel to ensure it contains NO alcohol.

NOTE: A simple method for determining the presence of alcohol in fuel is to thoroughly shake a test cylinder containing 90 ml of the fuel to be tested and 10 ml of water. If, after settling, the water volume has increased, then alcohol is probably present in the fuel and the fuel is, therefore, unsuitable for aviation use.

(b) Use only freshly obtained supplies; avoid long storage in the aircraft fuel tank.

(c) If the aircraft has been standing for 24 hours or longer, check fuel for water.

(d) As carburettor icing is more likely when using MOGAS, particular attention should be paid to the use of carburettor hot air/ heating. For pilot selectable systems this should include:

- making sure, during the pre-take-off checks, that a good RPM drop is obtained when hot air is selected,
- intermittent selection of hot air in flight whether or not the symptoms of loss of power are experienced.

For non selectable systems, ensure that the carburettor heating is serviceable.

- (e) In the course of the daily check and other routine inspections, pay particular attention to non-metallic fuel pipes and seals for signs of leaks or deterioration.
- (f) After any prolonged period of heat soak at low fuel flow (e.g. hot day ground idling) establish the ability to maintain full power before commencing a take-off.

3 RECORDING USE OF FILLING STATION FORECOURT MOTOR GASOLINE (MOGAS)

All operating times with fuel containing 25% or more of MOGAS must be recorded in the airframe log book, and block records must be transferred at appropriate intervals into the engine log book(s).

4 CANCELLATION This Notice cancels Airworthiness Notice No. 98A Issue 2, dated 18 March 1999 which should be destroyed.

AIRWORTHINESS NOTICE No. 98A**Appendix 1***Issue 4**29 March 2006***Air Navigation Order 2005 Exemption**

- 1 The Civil Aviation Authority, in exercise of its powers under Article 153 of the Air Navigation Order 2005, as amended, hereby exempts the aircraft set out in Schedule 1 hereto, from the provisions of Article 8(1) of the said Order to the extent necessary to enable it to fly using four star Motor Gasoline to BSI specification BS 4040 : 2001. Unless it is known on a particular flight that the proportion of Motor Gasoline in the aircraft's fuel is less than 25%, the aircraft shall be deemed for the purpose of this Exemption to be using Motor Gasoline.
- 2 This Exemption is subject to the following conditions:
 - (a) No Motor Gasoline fuel shall be used for flight unless it complies with BS 4040 : 2001 and contains no alcohols.
 - (b) No flight shall be made pursuant to this Exemption unless either:
 - (i) the temperature of the fuel in the tank prior to the commencement of the flight may reasonably be assumed to be less than 20°C and the aircraft is flown below a pressure altitude of 6000 ft, or
 - (ii) the written permission of the CAA has been obtained to operate to different limitations and that the terms of the permission are complied with.
 - (c) No flight shall be made pursuant to this Exemption unless the limitations pursuant to sub-paragraph (b) above due to the use of Motor Gasoline are set out on a placard which is affixed in a conspicuous position in the flight crew compartment of the aircraft.
 - (d) In respect of every flight pursuant to this Exemption, there shall be endorsed in the aircraft log book maintained in respect of the aircraft a statement that the flight was undertaken pursuant to this Exemption. Block records must be transferred to the engine log book at appropriate intervals.
- 3 The Exemption dated 28 September 2004 is hereby revoked.
- 4 This Exemption shall have effect from the date hereof until revoked.



Ron Elder
for the Civil Aviation Authority
Dated 29 March 2006

AIRWORTHINESS NOTICE No. 98A**Schedule 1***Issue 3**29 March 2006*

- 1** Motor Gasoline to BSI specification BS 4040 : 2001 but which contains NO alcohol may be obtained directly from a filling station forecourt for use in aircraft which meet the following three conditions; unless prohibited by paragraph 2.
- 1.1 The engine/aircraft combination is approved to use:
- MOGAS to Specification BS 4040: 2001
- or
- AVGAS and the engine has a compression ratio not greater than 7.5:1 and is not supercharged; an engine with a compression ratio greater than 7.5:1 is acceptable provided the engine/aircraft combination is listed in Schedule 1 of Airworthiness Notice No.98.
- 1.2 The aircraft is not operating for the purposes of public transport or aerial work.
- 1.3 The aircraft is:
- a microlight aeroplane, or
 - a gyroplane, or
 - a powered sailplane, or
 - a single engine light aircraft (below 2730 kg) and listed in Schedule 1 of Airworthiness Notice No. 98.

NOTE: If an aircraft is not listed in Schedule 1 of Airworthiness Notice No. 98, it may be because a request has not been received by the CAA for its inclusion.

- 2** Engine/Aircraft combinations falling outside the scope of this Airworthiness Notice include:
- (a) Those combinations, unless listed in Schedule 1 of Airworthiness Notice No. 98, for which the Aircraft Manuals specifically exclude the use of MOGAS.
- (b) The following types for which experience with Airworthiness Notice No. 98 has been unsatisfactory:
- Grumman American AA1B Trainer – Lycoming 0-235-L2C
 - Gulfstream American AA5A – Lycoming 0-320-E
 - Gulfstream American AA5B – Lycoming 0-360-A
 - Piper PA28 Warrior – Lycoming 0-320-E3D
 - + Jodel DR1050 -Continental 0-200-A
 - + Jodel D140A -Lycoming 0-360-A
 - + Piel Emeraude CP301B : Continental C90
 - + Piel Emeraude CP301A : Continental 0-200A or C90
 - + Piel Emeraude CP301B : Continental 0-200A
 - + Piel Emeraude CP1301C : Continental C90

NOTE: + Unless the front fuel tank is used for take-off, initial climb and landing.

AIRWORTHINESS NOTICE No. 98A**Appendix 2***Issue 3**29 March 2006***Air Navigation Order 2005 Exemption**

- 1 The Civil Aviation Authority, in exercise of its powers under Article 153 of the Air Navigation Order 2005 (as amended) ('the Order') hereby exempts any person from the requirements of Article 137(1)(a)(iii), 137(1)(b) and 137(3)(b) of the said Order subject to the following conditions.
- 2 This exemption shall only be relied upon when the following conditions are complied with:
 - (a) The person relying on this exemption shall be causing or permitting leaded motor gasoline fuel to be delivered to an aircraft specified in Schedule 1 hereto which fuel complies with specification BS 4040:2001;
 - (b) If the said fuel has not been obtained directly from a filling station forecourt pump carrying the appropriate fuel specification markings, the person shall comply with the requirements of Article 137(1)(a)(iii);
 - (c) The person who has caused or permitted the fuel to be delivered to the aircraft, shall take all reasonable steps to ensure that for every flight made by that aircraft on which leaded fuel delivered pursuant to this exemption has been consumed, there is endorsed in the aircraft log book maintained in respect of the aircraft, a statement that the flight was undertaken in connection with this exemption. Block records must be transferred to the engine log book at appropriate intervals;
 - (d) The person who has caused or permitted the fuel to be delivered to the aircraft, shall take all reasonable steps to ensure that any unsatisfactory engine operation or failure which may be attributed to the use of leaded motor gasoline shall be immediately reported to the CAA, Propulsion Department, Safety Regulation Group, Aviation House, Gatwick;
 - (e) Records detailing the source and dates of fuel procurement and use must be maintained.
- 3 The exemption dated 28 September 2004 is hereby revoked.
- 4 This exemption shall have effect from the date hereof until revoked.



Ron Elder
for the Civil Aviation Authority
Date 29 March 2006

AIRWORTHINESS NOTICE**No. 98B
Issue 4
29 March 2006****Use Of Filling Station Forecourt Unleaded Motor Gasoline In Microlight
Aeroplanes****1 INTRODUCTION**

Airworthiness Notice No. 98 and No. 98A permit the use of leaded Motor Gasoline (MOGAS) to Specification BS 4040. The supplies of this fuel became very limited after the year 2000. Consideration has been given to the possibility of using unleaded MOGAS to specification BS EN228:2004 and BS 7070 in aircraft powered by piston engines (including rotary piston engines). Although some engines are type approved to operate on this fuel, MOGAS supplies may not be obtainable in accordance with Article 137 of the Air Navigation Order 2005 (as amended). Accordingly, this Airworthiness Notice No. 98B by means of the attached Exemption to Article 137 of the Air Navigation Order, permits the operation of microlight aeroplanes using unleaded motor gasoline, subject to the conditions stated in this Notice.

2 GENERAL

- 2.1 The flight and landing characteristics of microlight aeroplanes are designed to be such that an engine failure resulting in partial or total loss of power only, is not an unacceptable safety risk. However it is a condition of the use of unleaded MOGAS that the user fully accepts that there is an increased risk of engine failure when using fuels obtained from filling station forecourts rather than dedicated aviation fuel installations.
- 2.2 The provisions of this Notice are not applicable to aircraft other than microlight aeroplanes. Accordingly other aircraft may have to use alternative approved fuels, e.g. AVGAS when leaded MOGAS is no longer available, pending a supply of aviation grade unleaded fuel.
- 2.3 Aviation grade unleaded fuel is currently under development and should become commercially available during the next few years.

3 CONDITIONS FOR USING UNLEADED MOTOR GASOLINE OBTAINED FROM A FILLING STATION FORECOURT

- (a) The aircraft is a microlight aeroplane within the definition of ANO Article 155, having in force a valid Permit to Fly issued by the Authority or conducting flight trials under an appropriate permission (e.g. B Conditions) for the purpose of obtaining such a Permit.
- (b) The engine/aircraft combination is CAA approved to use unleaded fuel complying with Specification BS EN228:2004 or BS 7070.
- (c) Records of fuel supply must be maintained (date, location of purchase, quantity purchased, method of storage).

4 PRECAUTIONS

- (a) The fuel must not be rendered unfit by storage, contamination etc.
- (b) Use only freshly obtained supplies; avoid long storage in the aeroplane fuel tank or in containers.

- (c) The fuel must be checked for the presence of water if the aeroplane has been standing for 24 hours or longer.
- (d) During the daily check and other routine inspections, pay particular attention to non-metallic fuel pipes and seals for signs of leaks or deterioration.
- (e) The ability to maintain Take-Off power must be verified before the aircraft is committed to completing a take-off.

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CANCELLATION This Notice cancels Airworthiness Notice No. 98B, Issue 3, dated 28 September 2004, which should be destroyed.

AIRWORTHINESS NOTICE No. 98B**Appendix 1***Issue 4**29 March 2006***Air Navigation Order 2005 Exemption**

- 1** The Civil Aviation Authority in exercise of its powers under the Article 153 of the Air Navigation Order 2005 (as amended) ('the Order') hereby exempts any person from the requirements of Article 137(1)(a)(iii), 137(1)(b) and 137(3)(b) of the said Order subject to the following conditions.
- 2** This exemption shall only be relied upon when the following conditions are complied with:
 - (a) The person relying on this exemption shall be causing or permitting unleaded motor gasoline fuel to be delivered to an aircraft specified in Schedule 1 hereto which fuel complies with specification BS EN228:2004;
 - (b) If the said fuel has not been obtained directly from a filling station forecourt pump carrying the appropriate fuel specification markings, the person shall comply with the requirements of Article 137(1)(a)(iii);
 - (c) The person who has caused or permitted the fuel to be delivered to the aircraft, shall take all reasonable steps to ensure that for every flight made by that aircraft on which unleaded fuel delivered pursuant to this exemption has been consumed, there is endorsed in the aircraft log book maintained in respect of the aircraft, a statement that the flight was undertaken in connection with this exemption. Block records must be transferred to the engine log book at appropriate intervals.
 - (d) The person who has caused or permitted the fuel to be delivered to the aircraft shall take all reasonable steps to ensure that any unsatisfactory engine operation or failure which may be attributed to the use of unleaded motor gasoline shall be immediately reported to the CAA, Propulsion Department, Safety Regulation Group, Aviation House, Gatwick;
 - (e) No unleaded motor gasoline fuel shall be used for flight unless it complies with specification BS EN228:2004.
 - (f) Records detailing the source and dates of fuel procurement and use must be maintained.
- 3** The exemption dated 28 September 2004 is hereby revoked.
- 4** This exemption shall have effect from the date hereof until revoked.



Ron Elder
for the Civil Aviation Authority
Dated 29 March 2006

AIRWORTHINESS NOTICE No. 98B**Schedule 1***Issue 3**29 March 2006*

- | **1** Motor gasoline to specification BS EN228:2004 may be obtained directly from a filling station forecourt for use in aircraft which meet the following conditions:
- | 1.1 The aircraft is a microlight aeroplane within the definition of ANO 2005 Article 155 having in force a valid Permit to Fly issued by the Authority, or is conducting flight trials under an appropriate permission for the purposes of obtaining a Permit to Fly as a microlight aeroplane.
- | 1.2 The engine/aircraft combination is approved to use unleaded motor gasoline to specification BS EN228:2004.

AIRWORTHINESS NOTICE**No. 98C
Issue 3
29 March 2006****Use Of Filling Station Forecourt Unleaded Motor Gasoline In Certain Light Aircraft****1 INTRODUCTION**

Airworthiness Notice Nos. 98 and 98A permit the use of leaded Motor Gasoline (MOGAS) to Specification BS 4040. The supplies of this fuel became very limited after the year 2000. Consideration has been given to the possibility of using unleaded MOGAS to specification BS EN228:2004 in aircraft powered by piston engines (including rotary piston engines). Although some engines are type approved to operate on this fuel, MOGAS supplies may not be obtainable in accordance with Article 137 of the Air Navigation Order 2005 (as amended). Accordingly, this Airworthiness Notice No. 98C by means of the attached Exemption to Article 137 of the Air Navigation Order, permits the operation of certain light aircraft using unleaded motor gasoline obtained from a filling station forecourt, subject to the conditions stated in this Notice. (Airworthiness Notice No. 98B provides a similar Exemption for certain Microlight aeroplanes.)

2 GENERAL

It should be noted that although the CAA is satisfied that the qualifying aircraft/engines may be operated with adequate safety on filling station forecourt fuel, subject to the conditions stated in this Notice, the CAA takes no responsibility for infringement of manufacturer's warranty, accelerated deterioration of the engine or airframe components, or any other long term deleterious effects.

3 CONDITIONS FOR USING UNLEADED MOTOR GASOLINE OBTAINED FROM A FILLING STATION FORECOURT

- (a) The aircraft is a single engine aeroplane or rotorcraft (not exceeding 2730 kg MTWA), excluding aircraft contained in the Schedules to AN 98B.
- (b) The engine/aircraft combination is CAA approved to use unleaded fuel complying with Specification BS EN228:2004.
- (c) Records of fuel supply must be maintained (date, location of purchase, quantity purchased, method of storage).

NOTE: Aircraft which can comply with 3(b), (as of the date of amendment of this Notice), are listed in Schedule 2 to this Notice together with the associated modifications required.

4 PRECAUTIONS

- (a) The fuel must not be rendered unfit by storage, contamination etc.
- (b) Only freshly obtained fuels must be used; avoid long storage in the aircraft fuel tank or in containers.
- (c) The fuel must be checked for the presence of water if the aircraft has been standing for 24 hours or longer.
- (d) During the daily check and other routine inspections, pay particular attention to non metallic fuel pipes and seals for signs of leaks or deterioration.

- (e) The ability to maintain Take-Off power must be verified before the aircraft is committed to completing a take-off.
- (f) The fuel must be tested to ensure that it contains NO ALCOHOL.

NOTE: A simple method for determining the presence of alcohol in fuel is to shake thoroughly a test cylinder containing 90 ml of the fuel to be tested and 10 ml of water. If, after settling, the water volume has increased, then alcohol is probably present in the fuel and the fuel is, therefore, unsuitable for aviation use.

5**CANCELLATION**

This Notice cancels Airworthiness Notice No. 98C, Issue 2, dated 16 March 2001, which should be destroyed.

AIRWORTHINESS NOTICE No. 98C**Appendix 1***Issue 3**29 March 2006***Air Navigation Order 2005 Exemption**

- 1** The Civil Aviation Authority in exercise of its powers under the Article 153 of the Air Navigation Order 2005 (as amended) ('the Order') hereby exempts any person from the requirements of Article 137(1)(a)(iii), 137(1)(b) and 137(3)(b) of the said Order subject to the following conditions.
- 2** This exemption shall only be relied upon when the following conditions are complied with:
 - (a) The person relying on this exemption shall be causing or permitting unleaded motor gasoline fuel to be delivered to an aircraft specified in Schedule 1 hereto which fuel complies with specification BS EN228:2004;
 - (b) If the said fuel has not been obtained directly from a filling station forecourt pump carrying the appropriate fuel specification markings, the person shall comply with the requirements of Article 137(1)(a)(iii) ;
 - (c) The person who has caused or permitted the fuel to be delivered to the aircraft shall take all reasonable steps to ensure that for every flight made by that aircraft on which unleaded fuel delivered pursuant to this exemption has been consumed, there is endorsed in the aircraft log book maintained in respect of the aircraft, a statement that the flight was undertaken in connection with this exemption. Block records must be transferred to the engine log book at appropriate intervals.
 - (d) The person who has caused or permitted the fuel to be delivered to the aircraft shall take all reasonable steps to ensure that any unsatisfactory engine operation or failure which may be attributed to the use of unleaded motor gasoline shall be immediately reported to the CAA, Engineering Department, Safety Regulation Group, Aviation House, Gatwick;
 - (e) No unleaded motor gasoline fuel shall be used for flight unless it complies with specification BS EN228:2004.
 - (f) Records detailing the source and dates of fuel procurement and use must be maintained.
- 3** The exemption to Article 112(1)(a)(iii), 112(1)(b) and 112(3)(b) of the Air Navigation Order 2000 dated 16 March 2001 is hereby revoked.
- 4** This exemption shall have effect from the date hereof until revoked.



Signed
for the Civil Aviation Authority
Dated 29 March 2006

AIRWORTHINESS NOTICE No. 98C**Schedule 1***Issue 3**29 March 2006*

- | **1** Motor gasoline to specification BS EN228:2004 may be obtained directly from a filling station forecourt for use in aircraft which meet the following three conditions:
- |
- (a) The engine/aircraft combination is CAA approved to use unleaded motor gasoline to specification BS EN228:2004.
 - (b) The aircraft is not operating for the purposes of public transport or aerial work.
 - (c) The aircraft is a single engine aeroplane or rotorcraft (not exceeding 2730 kg MTWA), excluding aircraft contained in the Schedules to AN 98B.

AIRWORTHINESS NOTICE No. 98C**Schedule 2***Issue 3**29 March 2006***Aircraft and Engine combinations approved by the CAA to use unleaded motor gasoline to specification EN228.**

This Schedule 2 lists the aircraft/engine combinations which, up to January 2001, have been approved by the CAA to use fuel conforming with EN228. The approved aircraft are divided into 3 groups:

- Group 1.** Aircraft for which the Type Certificate Holder has shown compliance with the applicable requirements, and for which approval to use EN228 is specified in the Flight Manual or other approved document.
- Group 2.** Aircraft embodying FAA STC-approved modifications to both the engine and the aircraft, where the combination of modifications has been validated by the CAA under Airworthiness Approval Notes 27743 and 27744.
- Group 3.** Aircraft embodying FAA STC-approved modifications to the engine, and for which compatibility between the fuel system and the fuel has been accepted by the CAA. The approval of these aircraft and their modified engines is given under Airworthiness Approval Notes 27742 and 27744.

NOTE: Aircraft issued with Permits to Fly on the basis of recommendations made by organisations holding appropriate approvals issued by the CAA, (e.g. PFA, BMAA, etc.), may be approved to use unleaded motor gasoline using the modification approval procedures of those organisations.

GROUP 1

Any aircraft which has a valid UK Certificate of Airworthiness and has unleaded motor gasoline (EN228) listed as a suitable fuel in the CAA-approved Flight Manual or other approved document, may be taken as satisfying paragraph 1(a) of Schedule 1.

GROUP 2

These aircraft are listed below. To satisfy paragraph 1(a) of Schedule 1 the aircraft and their engines must be modified in accordance with the referenced FAA STCs and comply with AANs 27743 and 27744.

The aircraft approved to use unleaded motor gasoline conforming with EN228 under AANs 27743 and 27744 are:

Aircraft Make	Aircraft Model	STC No.	STC Holder
Beech	D17S with P&W R-985 with STC SE1860CE	SA2009CE	Petersen Aviation
Beech	33 Series with TCM IO-470-K or -J engines with STC SE2016CE	SA2049CE	Petersen Aviation
Beech	35, A35, B35, C35, D35, E35, F35, G35, and 35R, with TCM E-185 Series, E-225 Series, TCM IO-470-K or -J engines with STC SE3033CE, SE2034CE, or SE2016CE as applicable.	SA2045CE	Petersen Aviation

Aircraft Make	Aircraft Model	STC No.	STC Holder
Beech	35, A35, B35, C35, D35, E35, F35, G35, and 35R, with TCM E-185-1, -8, -11, or E-225-8 engines with STC SE693GL.	SA799GL	Experimental Aircraft Association
Bellanca/ Champion/ Aeronca	7GCAA, 7GCBC, 7AC, S7AC, 7BCM, 7CCM, 7DC, S7DC, S7CCM, 7EC, S7EC, 7FC, 7GC, 7HC, 7JC, 7KC, 7ECA, 7GCB, 7GCBA and 7GCA with Lycoming or TCM engines with STCs SE1931CE, SE2035CE, SE2036CE, SE2029CE, SE2030CE or SE2031CE as applicable.	SA1970CE	Petersen Aviation
Boeing	75 Series with P&W R-985-, or TCM W670- engines with STCs SE1860CE, or SE2028CE as applicable.	SA1934CE	Petersen Aviation
Cessna	120, 140 Series with gravity feed to carburettor and TCM C-85 or C-90 Series engines with STC SE2030CE or SE2031CE as applicable	SA2100CE	Petersen Aviation
Cessna	120, 140 with TCM C-85-12 or -12F engine with STC SE634GL	SA691GL	Experimental Aircraft Association
Cessna	140A with TCM C-90-12F engine with STC SE634GL	SA692GL	Experimental Aircraft Association
Cessna	140A with gravity feed to carburettor and TCM C-90 or C-85 engine with STC SE2031CE or SE2030CE as applicable	SA2096CE	Petersen Aviation
Cessna	150, 150A through 150M, A150K, A150L, A150M, 152 and A152; - aircraft with TCM O-200-A engines with STC SE2031CE, or low-compression Lycoming O-320 engines with STC SE1931CE	SA2048CE	Petersen Aviation
Cessna	150, 150A through 150H, and 150J through 150M - aircraft with TCM O-200-A engines with STC SE634GL	SA633GL	Experimental Aircraft Association
Cessna	170, 170A, 170B with TCM C145-2, -2H with STC SE693GL	SA762GL	Experimental Aircraft Association
Cessna	170A, 170B with gravity feed to carburettor and TCM C145 or O-300 engine with STC SE2006CE	SA2019CE	Petersen Aviation
Cessna	172, 172A through 172H with TCM O-300- engines with STC SE2006CE, and 172I, K, L & M with Lycoming O-320-E2D engine with STC SE1931CE	SA1948CE	Petersen Aviation

Aircraft Make	Aircraft Model	STC No.	STC Holder
Cessna	172, 172A, B, C, D, E, F, G, & H with TCM O-300-A, -B, -C, or -D with STC SE693GL	SA761GL	Experimental Aircraft Association
Cessna	172I, K, L, M with Lycoming O-320-E2D with STC SE800GL	SA801GL	Experimental Aircraft Association
Cessna	175, 175A, 175B, 175C, P172D with gravity feed to carburettor and TCM GO-300 engine with STC SE2105CE	SA2138CE	Petersen Aviation
Cessna	175, 175A, 175B, 175C, P172D with GO-300-A, -B, -C, -D, or -E engine with STC SE693GL	SA763GL	Experimental Aircraft Association
Cessna	177 with Lycoming O-320-E2D engine with STC SE1931CE	SA2010CE	Petersen Aviation
Cessna	177 with Lycoming O-320-E2D engine with STC SE800GL	SA803GL	Experimental Aircraft Association
Cessna	180, 180A through 180H, 180J with TCM O-470-A, -J, -K, -L, -R, -S engines with STC SE1997CE	SA2001CE	Petersen Aviation
Cessna	180, 180A through 180H, 180J, 180K with TCM O-470-A, -J, -K, -L, -R engines with STC SE693GL	SA695GL	Experimental Aircraft Association
Cessna	182, 182A through 182H, 182J through 182N and 182P with TCM O-470-L, -R, -S engines with STC SE1997CE	SA2000CE	Petersen Aviation
Cessna	182, 182A through 182H, 182J through 182N and 182P with TCM O-470-L, -R, -S engines with STC SE693GL	SA694GL	Experimental Aircraft Association
Cessna	188, 188A, 188B with TCM O-470-R engine with STC SE1997CE	SA2013CE	Petersen Aviation
Cessna	190, 195, 195A, 195B with TCM engines with STC SE2028CE, or Jacobs engines with STCs SE2416CE, SE2417CE, or SE2418CE	SA2421CE	Petersen Aviation
Cessna	305B, 305E, T0-1D, 0-1D, 0-1F with TCM O-470- engines with STC SE2094CE	SA2098CE	Petersen Aviation
Cessna	305A, 305C, 305D, 305F, 0-1A, 0-1E, 0-1G with TCM O-470- engines with STC SE2094CE	SA2099CE	Petersen Aviation
Cessna	305A, 305C, 305D, 305F, 0-1A, 0-1E, 0-1G with TCM O-470-11 or -11B engine with STC SE693GL	SA759GL	Experimental Aircraft Association

Aircraft Make	Aircraft Model	STC No.	STC Holder
Cessna	305B, 305E, T0-1A, 0-1D, 0-1F with TCM O-470-15 engine with STC SE693GL	SA760GL	Experimental Aircraft Association
DHC	DHC-2 with P&W R-985 with STC SE1860CE	SA1882CE	Petersen Aviation
Luscombe	8, 8A, 8C, 8D, 8E, 8F, T-8F with TCM A-50-1, A-65-1, A-75-8J, C-85-12, C-90-12F with STC SE634GL	SA730GL	Experimental Aircraft Association
Maule	M-4, M-4C, M-4S, M-4T with gravity feed to carburettor and TCM O-300 engine with STC SE2006CE	SA2097CE	Petersen Aviation
Maule	M-5-235, M-6-235, M-7-235, M-7-235A, M-7-235B, MX-7-235C, MX-7-235, M-7-235C; - with Lycoming O-540-B4B5 engines modified to STC SE1909CE	SA2963SO	Maule Flight
Piper	J3C-40, J3C-50, J3C-50S, J3C-65 L-4, L-4A, L-4B, L-4H, L-4J, J3C-65S, PA-11, PA-11S with TCM A-40-4, A-50-1, A-65-1, -8E engines with STC SE634GL	SA736GL	Experimental Aircraft Association
Piper	J-3 with TCM A-40 engine with STC SE634GL	SA775GL	Experimental Aircraft Association
Piper	J3F-50, J3F-50S, J3F-60, J3F-60S, J3F-65, J3F-65S with TCM engines with STC SE634GL	SA832GL	Experimental Aircraft Association
Piper	J3L, J3L-S, J3L-65, J3L-65S with TCM engines with STC SE634GL	SA833GL	Experimental Aircraft Association
Piper	J-3C-65, J3C-65S, PA-11, PA-11S with gravity feed to carburettor and TCM A-65-(), C-75-(), C-85-(), and C-90-() engines with STCs SE2029CE, SE2030CE, or SE2031CE	SA2080CE	Petersen Aviation
Piper	J4, J4A, J4A-S with TCM A-50-1, A-65-1 engines with STC SE634GL	SA737GL	Experimental Aircraft Association
Piper	J4E, L4E, with TCM A-75-9 engine with STC SE634GL	SA738GL	Experimental Aircraft Association
Piper	J4E, J4A-S with gravity feed to carburettor and TCM A-65-() engines with STC SE2029CE	SA2146CE	Petersen Aviation
Piper	J4E, L4E with gravity feed to carburettor and TCM A-75-() engines with STC SE2030CE	SA2147CE	Petersen Aviation

Aircraft Make	Aircraft Model	STC No.	STC Holder
Piper	PA-12, PA-12S with Lycoming O-235-(), O-290-(), O-320-() engines with STC SE1931CE, SE2035CE, or SE2036CE.	SA2075CE	Petersen Aviation
Piper	PA-14 with gravity feed to carburettor and Lycoming O-235-() engines with STC SE2035CE.	SA2083CE	Petersen Aviation
Piper	PA-16, PA-16S with gravity feed to carburettor and Lycoming O-235-() engines with STC SE2035CE.	SA2082CE	Petersen Aviation
Piper	PA-17 with TCM A-65-8 or -8F engines with STC SE634GL	SA766GL	Experimental Aircraft Association
Piper	PA-18, PA-18S, PA-18-105, PA-18S-105, PA-18A, PA-18-150, PA-18A-150, PA-18S-150, PA-18AS-150, PA-18S-135, PA-18AS-135, PA-18-125, PA-18S-125, PA-18-135, PA-18A-135, PA-19, PA-19S, with Lycoming O-235-(), O-290-(), or O-320-() engines with STC SE1931CE, SE2035CE, or SE2036CE, or with TCM C-90 engines with STC SE2031CE.	SA1961CE	Petersen Aviation
Piper	PA-20 with Lycoming O-320 engine with STC SE1931CE	SA2012CE	Petersen Aviation
Piper	PA-22, PA-22-108, PA-22-135, PA-22S-135, PA-22-150 and PA-22S-150 with Lycoming O-320-A2A, -A2B, O-235-(), O-290-() with STC SE1931CE, SE2035CE, or SE2036CE as applicable	SA1949CE	Petersen Aviation
Piper	PA-25 and PA-25-235 with Lycoming O-540-B Series engine with STC SE1909CE	SA1932CE	Petersen Aviation
Piper	PA-28-140, -150, -151 with Lycoming O-320-E2A, -A2B, -E3D engines with STC SE800GL	SA802GL	Experimental Aircraft Association
Piper	PA-28-140, -150, -151 with Lycoming O-320-A2B, -E2A, -E2D, -E3D engines with STC SE1931CE	SA1963CE	Petersen Aviation
Piper	PA-28-235 with Lycoming O-540-B2B5, B1B5, B4B5 with STC SE1909CE	SA1964CE	Petersen Aviation

Aircraft Make	Aircraft Model	STC No.	STC Holder
Reims Cesna	150G, H, J, K, L, M, FA150K, L; - aircraft with TCM O-200-A engines with STC SE2031CE, or low-compression Lycoming O-320 engines with STC SE1931CE	SA00216WI	Petersen Aviation
Reims Cesna	F172D, E, F, G, H, K, L, M with TCM O-300- engines with STC SE2006CE, and with Lycoming O-320-E2D engine with STC SE1931CE	SA00215WI	Petersen Aviation
Reims Cesna	F182P with TCM O-300- engines with STC SE2006CE, and with Lycoming O-320-E2D engine with STC SE1931CE	SA00214WI	Petersen Aviation
Robinson	R22 with Lycoming O-320-A2B or A2C with STC SE1931CE	SH2011CE	Howard Fuller
Stinson	108, 108-1, 108-2, 108-3 with gravity feed to carburettor and Franklin 6A4-() engines with STC SE2127CE.	SA2128CE	Petersen Aviation
Stinson	SR-5, -5A, -5B, -5C, -5E, L-12; - with gravity feed and Lycoming R-680-() radial engines with STCs SE2409CE, SE2413CE, or SE2414CE as applicable	SA00002WI	Petersen Aviation
Stinson	L-5B, -5C, -5D, -5E, -5E-1, -5G; - with gravity feed and Lycoming O-435-() engines with STC SE2278CE	SA2396CE	Petersen Aviation
Taylorcraft	BC, BCS, BC-65, BCS-65, BC12-65(L-2H), BCS12-65, BC12-D, BCS12-D, BC12-D1, BCS12-D1, BC12D-85, BCS12D-85, BC12D-4-85, BCS12D-4-85 with TCM A-50-1, A-65-1, -7, -8, C85-8F, -12F engines with STC SE634GL	SA768GL	Experimental Aircraft Association
Taylorcraft	19 and F19 with TCM C-85-12, -12F, or O-200-A engine with STC SE634GL	SA769GL	Experimental Aircraft Association
Taylorcraft	DC-65 (L-2, L-2C), DCO-65 (L-2A, L-2B, L-2M) with TCM A-65-8 engine with STC SE634GL	SA770GL	Experimental Aircraft Association
Taylorcraft	BC-65, BCS-65, BC12-65(L-2H), BCS12-65, BC12-D, BCS12-D, BC12-D1, BCS12-D1, BC12D-85, BCS12D-85, BC12D-4-85, BCS12D-4-85 with TCM A-50-1, A-65-1, -7, -8, C85-8F, -12F engines with STC SE2029CE or SE2030CE	SA2085CE	Petersen Aviation

Aircraft Make	Aircraft Model	STC No.	STC Holder
Taylorcraft	19 and F19 with TCM C-85-12, -12F, or O-200-A engine with STC SE2030CE or SE2031CE	SA2076CE	Petersen Aviation
Taylorcraft	DC-65 (L-2, L-2C), DCO-65 (L-2A, L-2B, L-2M) with TCM A-65-8 engine with STC SE2029CE	SA2086CE	Petersen Aviation
Univair/Erco/ Alon/Forney/ Mooney	415-D, E, G, F-1, F-1A, A-2, A-2A, M10 with TCM C75-12, -12F, C85-12, -12F, C-90-12F, -16F engines with STC SE634GL	SA798GL	Experimental Aircraft Association
Univair/ Erco/ Alon/ Forney/ Mooney	415-C, 415CD with TCM A-65-8, C75-12, -12F, engines with STC SE634GL	SA821GL	Experimental Aircraft Association

GROUP 3

These aircraft are listed below. To satisfy paragraph 1(a) of Schedule 1 the aircraft must be modified in accordance with the referenced FAA STCs and comply with AANs 27742 and 27744.

The aircraft approved to use unleaded motor gasoline conforming with EN228 under AANs 27742 and 27744 are :

Aircraft Type	Engine Type	Engine STC(s) (as applicable)
Adam Loisir	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Aeronca L16	Continental C85	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Aeronca 7BCM	Continental C85	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Aeronca 7AC	Continental A65 or A75	SE2029CE - Petersen Aviation SE2030CE - Petersen Aviation SE634GL - E.A.Association
Aeronca 11 AC	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Aeronca 7FC	Continental A75	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Aeronca 15AC	Continental C-145	SE2006CE - Petersen Aviation SE693GL - E.A.Association
Aeronca 11CC	Continental C85	SE2030CE - Petersen Aviation SE634GL - E.A.Association

Aircraft Type	Engine Type	Engine STC(s) (as applicable)
Andreasson BA4B	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Auster 4	Lycoming 0-290	SE2036CE - Petersen Aviation SE800GL - E.A.Association
Auster 5	Lycoming 0-290-3, 0-320	SE2036CE - Petersen Aviation SE1931CE - Petersen Aviation SE800GL - E.A.Association
Auster 5J2 Arrow	Continental C75	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Auster 5J4/100	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Auster D4/108	Lycoming 0-235-C	SE2035CE - Petersen Aviation
Auster D5/J2	Continental A75	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Auster D5/JSA	Continental A75	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Auster D6 -180	Lycoming 0-320-A	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Baby Lakes	Continental A65-8	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Beagle Pup 100	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Beagle Pup B121/2	Lycoming 0-320-A	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Bolkow Junior	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Bellanca Citabria	Lycoming 0-320-A	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Bellanca 7ACA	Continental C-85	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Boeing Stearman A75N1	Continental W670 6A	SE2028CE - Petersen Aviation
Brochet M B84	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Cassutt Racer 111 M	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
CEA DR221	Lycoming 0-235-C	SE2035CE - Petersen Aviation
Cessna 120	Continental C90, Continental C85	SE2031CE - Petersen Aviation, SE2030CE - Petersen Aviation SE634GL - E.A.Association

Aircraft Type	Engine Type	Engine STC(s) (as applicable)
Cessna 140	Continental C85	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Cessna 150	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Cessna 150E	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Cessna 150M	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Cessna F150	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Cessna F150H	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Cessna F150K	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Cessna F150L	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Cessna F150M	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Cessna FA150K	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Cessna 152	Lycoming O-235-L	SE790GL - E.A.Association
Cessna F152	Lycoming O-235-L	SE790GL - E.A.Association
Cessna 170B	Continental 0-300-A	SE2006CE - Petersen Aviation SE693GL - E.A.Association
Cessna 172	Continental 0-300-A	SE2006CE - Petersen Aviation SE693GL - E.A.Association
Cessna 172A	Continental 0-300-C or -D	SE2006CE - Petersen Aviation SE693GL - E.A.Association
Cessna 172B	Continental 0-300-C or -D	SE2006CE - Petersen Aviation SE693GL - E.A.Association
Cessna 172E	Continental 0-300-C or -D	SE2006CE - Petersen Aviation SE693GL - E.A.Association
Cessna 172H	Continental 0-300-D	SE2006CE - Petersen Aviation SE693GL - E.A.Association
Cessna 172M	Lycoming 0-320-E	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Cessna F172E	Continental 0-300-D	SE2006CE - Petersen Aviation SE693GL - E.A.Association

Aircraft Type	Engine Type	Engine STC(s) (as applicable)
Cessna F172F	Continental 0-300-D	SE2006CE - Petersen Aviation SE693GL - E.A.Association
Cessna F172H	Continental 0-300-D	SE2006CE - Petersen Aviation SE693GL - E.A.Association
Cessna F172L	Lycoming 0-320-E	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Cessna F172M	Lycoming 0-320-E	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Cessna 175	Continental GO-300	SE2105CE - Petersen Aviation SE693GL - E.A.Association
Cessna 177	Lycoming 0-320-E	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Cessna 180	Continental 0-470-J or L	SE1997CE - Petersen Aviation SE693GL - E.A.Association
Cessna 182G	Continental 0-470-R	SE1997CE - Petersen Aviation SE693GL - E.A.Association
Chilton DW1	Lycoming 0-145-A2	SE2466CE - Petersen Aviation
Coates Swalsong	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Cosmic Wind	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Currie Wot	Lycoming 0-145-A	SE2466CE - Petersen Aviation
DHC -2 Beaver	Pratt &Whitney R985-AN1	SE1860CE - Petersen Aviation
Druine Condor	Continental C90, 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Druine Turbi	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
E.A.A.Biplane	Continental C75	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Evans VP -2	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Falconair F11	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Fokker DVIII	Warner Scarab	SE2591CE - Petersen Aviation
Fokker E111 Replica	Continental A75	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Fournier RF6B -100	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association

Aircraft Type	Engine Type	Engine STC(s) (as applicable)
Great Lakes	Warner Scarab	SE2591CE - Petersen Aviation
Issacs Fury	Lycoming 0-290	SE2036CE - Petersen Aviation SE800GL - E.A.Association
Issacs Spitfire	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Jodel D11	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Jodel D112	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Jodel D117 117A	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Jodel D119	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Jodel D120	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Jodel 150	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
*Jodel DR1050	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Jurca Tempete	Lycoming 0-290-D, Continental C90	SE2036CE - Petersen Aviation SE2031CE - Petersen Aviation SE634GL - E.A.Association
Jurca Sirocco	Lycoming 0-290-D	SE2036CE - Petersen Aviation SE800GL - E.A.Association
Kittiwake 1	Lycoming 0-290-D, Continental 0-200-A	SE2036CE - Petersen Aviation SE2031CE - Petersen Aviation SE634GL - E.A.Association SE800GL - E.A.Association
Kittiwake 2	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Luscombe 8A	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Luscombe 8E	Continental C85	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Luscombe 8F	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Luton Minor	Lycoming 0-145-A	SE2466CE - Petersen Aviation
Luton Minor 111	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association

Aircraft Type	Engine Type	Engine STC(s) (as applicable)
Luton Major LA5	Continental C90, Continental 0–200-A	SE2031CE - Petersen Aviation SE2031CE - Petersen Aviation SE634GL - E.A.Association
Manning Flanders	Continental C75	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Minicab GY20, GY201	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Minicab GY30, JB –01	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Midget Mustang	Continental C85, C90	SE2030CE - Petersen Aviation, SE2031CE - Petersen Aviation SE634GL - E.A.Association
Morane N Replica	Continental C90	SE2031CE - Petersen Aviation
Morane Saulnier MS 892A	Lycoming 0–320–E	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Morane Saulnier 100ST	Continental 0–200–A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Nord NC 854,854S,858S	Continental A65, Continental C90	SE2029CE - Petersen Aviation SE2031CE - Petersen Aviation SE634GL - E.A.Association
Pazmany PL4A	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
*Piel Emeraude CP 301B	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
*Piel Emeraude CP 301A	Continental 0–200–A or C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
*Piel Emeraude CP 301B	Continental 0–200–A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
*Piel Emeraude CP 301C	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Piper J2, J3C–65, L4A–C85, C90	Continental A65, C85, Conti- nental C90	SE2029CE - Petersen Aviation SE2030CE - Petersen Aviation SE2031CE - Petersen Aviation SE634GL - E.A.Association
Piper J4A	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Piper PA12	Lycoming 0–290	SE2036CE - Petersen Aviation SE800GL - E.A.Association
Piper PA15	Lycoming 0–145-A	SE2466CE - Petersen Aviation

Aircraft Type	Engine Type	Engine STC(s) (as applicable)
Piper PA15	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Piper PA16	Lycoming 0-235-C	SE2035CE - Petersen Aviation
Piper PA16	Lycoming 0-290-D	SE2036CE - Petersen Aviation SE800GL - E.A.Association
Piper PA17	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Piper PA17	Continental C85	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Piper PA18 Cub	Lycoming 0-290, 0-320-A	SE2036CE - Petersen Aviation SE1931CE - Petersen Aviation SE800GL - E.A.Association
Piper PA18-135	Lycoming 0-290-D, 0-320-A	SE2036CE - Petersen Aviation SE1931CE - Petersen Aviation SE800GL - E.A.Association
Piper PA19	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Piper PA20	Lycoming 0-290	SE2036CE - Petersen Aviation SE800GL - E.A.Association
Piper PA22 -108	Lycoming 0-235-C	SE2035CE - Petersen Aviation
Piper PA22 -135	Lycoming 0-290	SE2036CE - Petersen Aviation SE800GL - E.A.Association
Piper PA22 -150	Lycoming 0-320-A	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Piper PA28 -140	Lycoming 0-320-E	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Piper PA28 -151	Lycoming 0-320-E	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Piper PA38 -112	Lycoming 0-235-L	SE790GL - E.A.Association
Pitts S1C	Lycoming 0-320-A	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Rallye MS880B	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Rallye MS883	Lycoming 0-235-C	SE2035CE - Petersen Aviation
Rallye 885	Lycoming 0-235-C	SE2035CE - Petersen Aviation
Rallye 885	Continental 0-300-A	SE2006CE - Petersen Aviation SE693GL - E.A.Association
Rallye 100ST	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association

Aircraft Type	Engine Type	Engine STC(s) (as applicable)
Rallye 150ST	Lycoming 0-320-E	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Rallye ST150	Lycoming 0-320-E	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Replica SE5A	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Replica SE5A	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Replica WAR Sea Fury	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Robin R2112 Alpha	Lycoming 0-235-L	SE790GL - E.A.Association
Robinson R22 Helicopter	Lycoming 0-320-A	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Rollason Beta	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Rutan Varieze	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Scheibe SF3A/C	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Scintex CP 301 -C2	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Scintex CP1310	Continental 0-200	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Shield Xyla	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Sipa 91, 901, 902, 903	Continental C90, C85	SE2031CE - Petersen Aviation SE2030CE - Petersen Aviation SE634GL - E.A.Association
Socata TB9	Lycoming 0-320-E	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Sopwith Tabloid	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Stitts Playboy	Continental A75	SE2030CE - Petersen Aviation SE634GL - E.A.Association
Stolp Starlet	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Stolp V Star SA900	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association

Aircraft Type	Engine Type	Engine STC(s) (as applicable)
Storey TSR3	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Taylorcraft Plus D	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Taylorcraft BC-12D	Continental A65	SE2029CE - Petersen Aviation SE634GL - E.A.Association
Taylorcraft F.19	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Taylorcraft F.21	Lycoming 0-235-L	SE790GL - E.A.Association
Taylor Titch	Continental C85, C90, 0-200-A	SE2030CE - Petersen Aviation SE2031CE - Petersen Aviation SE634GL - E.A.Association
Turner TSW	Lycoming 0-320-A	SE1931CE - Petersen Aviation SE800GL - E.A.Association
Volmer Sportsman	Continental C90	SE2031CE - Petersen Aviation SE634GL - E.A.Association
Wittman Tailwind	Continental C90, 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association
WAR FW 190	Continental 0-200-A	SE2031CE - Petersen Aviation SE634GL - E.A.Association

* Front fuel tank must be used for take-off, initial climb and landing.

