AIRWORTHINESS APPROVAL NOTE NO: 04383 Addendum 4 Issue 6

APPLICANT:	CAA Internal Purposes
AIRCRAFT TYPE:	de Havilland DHC-1 Chipmunk Mk 22/22A
REGISTRATION NO:	- CONSTRUCTOR'S NO: -
OPERATOR:	N/A
INSTALLER:	N/A
DESIGN ORGANISATION:	de Havilland Support Ltd.
CERTIFICATE CATEGORY:	Standard Category
MODIFICATION NO:	-
MODIFICATION TITLE:	**To Approve the Standard of Conversion for the de Havilland Chipmunk T Mk 10 and T Mk 20 into a Civil Mk 22 or 22A Variant for Certification in the Standard Category**

1.0 Introduction

The original AAN 4383 was compiled in May 1956, and reflected the current state of knowledge relating to the modifications required to convert an ex-military Chipmunk T Mk 10 into a version which was acceptable for civil certification.

Over the following years, a number of modifications were introduced by Airworthiness Directive action and a significant number of other modifications became obsolete which made the data in the original AAN difficult to use, because the approval process omitted reference to non-approved military modifications, the updated list of mandatory action etc.

The purpose of this AAN is to rationalise and bring the approved civil conversion standard of the Chipmunk aeroplane up to date for both applicant and CAA. This applies to DHC-1 Chipmunk T Mk 10 and T Mk 20 aircraft submitted for certificate of airworthiness from 1 Jan 1996 onwards. Issue 2 was raised to include the ex-Portuguese T Mk 20 variant. Issue 3 was raised to record de Havilland Support Ltd (DHSL) as the Type Design organisation, replacing British Aerospace. Issue 4 of this AAN was raised to amend the noise certification requirements. Issue 5 of this AAN was raised to clarify the status of the modifications referenced under Section 4 of this AAN. Issue 6 of this AAN has been raised to introduce revised maintenance instructions, the change in National Certificate of Airworthiness Category and to reformat the AAN to current procedures.

2.0 Aircraft Build Standard/Modification Definition

The de Havilland Chipmunk is a tandem two seat training aeroplane of all-metal construction. It was operated under the T Mk 10 designation by the Royal Air Force and T Mk 20 in Portugal.

The aeroplane has a low wing and conventional tail unit configuration, together with a non-retractable landing gear of the tailwheel configuration. It is powered by a Gipsy Major engine driving one of a number of propeller options as defined in the approved Flight Manual.

Aeroplanes released from the RAF as T Mk 10 variants and aircraft released by Portugal as T Mk 20 variants must be modified to a design standard acceptable for civil certification as Chipmunk Mk 22 and 22A.

The current Type Design Organisation is de Havilland Support Ltd.

3.0 Approval Procedures

The basis of approval for any modification to this will be carried out in accordance with BCAR A2-5.

4.0 Basis of Certification

4.1 CAA Certification Basis For The Aircraft

The approved design standard for civil conversion of ex-military Chipmunk T Mk 10 and T Mk 20 aircraft is defined in British Aerospace Drawing No C1-G73 Issue 2 dated January 1996. This drawing pulls together all of the requirements for civil certification as previously approved on AAN 4383 Addendum 3 including appropriate Technical News Sheets (TNS), Flight Manual requirements and British Aerospace modifications. The above-referenced drawing includes the following British Aerospace modifications which were not previously required for civil conversion of the T Mk 10 or T Mk 20 aircraft:

H225 Introduction of new extension piece to rudder torque tube
H269 To introduce HTS pins to elevator torque tube
H275 To introduce special bolt (glider towing only)
H282 To introduce improved attachment of fire extinguisher mounting bracket
H360 To introduce reinforcing strips to each of the fin rear spar flanges (Part A Post-Mod H178, Part B Pre-Mod H178)

These modifications have been justified by British Aerospace (letter Ref MH/0101/96 dated 24 Apr 96).

Modifications H225, H269, H275, H282 and H360 have been classified as mandatory by the CAA. Technical News Sheet 200 introduces these modifications and has been mandated by Airworthiness Directive 006-03-97.

Drawing No C1-G73 Issue 2 dated January 1996 has been reviewed by CAA and is considered acceptable. Any subsequent CAA-Approved revision shall also be acceptable.

Any British Aerospace 'H' series modifications which are identified as being fitted but which not appear on drawing No C1-G73 Issue 2 (or later CAA-Approved revision) must be reviewed to determine whether they are approved for civil certification. If not approved they must be approved, disabled or removed in a manner acceptable to CAA under the Modification procedure.

Ex-military aeroplanes may have had a number of modifications embodied in military service which are defined as CM (Command Modifications), SEM (Service Engineered Modifications) and STI (Service Technical Instructions) within the aircraft logbooks. Applicants shall identify these modifications and provide substantiation that they are approved for civil certification; if not approved they must be either approved, disabled or removed in a manner acceptable to CAA under the Modification procedure.

Fatigue life must be calculated in accordance with TNS 138.

4.2 CAA Design Requirements For Certificate Of Airworthiness

Any installed equipment for which the Air Navigation Order requires approval must be approved by the CAA.

4.3 Environmental Requirements

ICAO Annex 16 Volume 1.

4.4 Design Requirements Associated With Operational Approvals

Not applicable.

5. Compliance With The Basis Of Certification

5.1 Compliance With The Certification Basis For The Aircraft

The basis of approval of the DHC-1 Chipmunk is equivalence with that already accepted as an approved design standard for De Havilland Chipmunk aeroplanes and on the design and continued airworthiness support provided by the type design holder.

The DHC-1 Chipmunk is operated in accordance with a Flight Manual that identifies applicable limitations and for individual aircraft, the engine and propeller combination.

5.2 Compliance With Design Requirements For Certificate Of Airworthiness

CAP 747 Generic Requirements may be applicable to individual aircraft, and shall be complied with.

5.3 Compliance with Environmental Requirements

Examples of the type added to the UK register after 1st January 1980 are required to be issued with a noise certificate. An historical exemption from the noise requirements may be possible but these requests will be dealt with on an individual basis by the CAA Noise Certification Group.

5.4 Compliance with Design Requirements Associated With Operational Approvals

Not applicable.

5.5 Required (Amendments To) Manuals And Other Documents Including Mandatory Placards

Any placards specified by the manufacturer must be installed. The aircraft weight and balance schedule must be amended as required. The aircraft shall be operated in accordance with the CAA-Approved Flight Manual (Ref DH 2.2). This Flight Manual shall be accompanied by a Certificate of Conformity from de Havilland Support Ltd which is specific to the aircraft registration.

6.0 Conditions Affecting This Approval

Limitations and conditions defined in the manufacturer's documentation must be observed. Additional limitations and placards are introduced as part of certain modifications listed in Drawing C1-G73 Issue 2 dated January 1996.

The compatibility of new modifications with other previously approved modifications installed on the particular aircraft must be verified by the installer. Where the potential for interactions between modifications exists, the advice of the CAA shall be sought.

7.0 Continued Airworthiness

The influence of Airworthiness Directive, Technical News Sheet and other data must be considered and the publications monitored accordingly. The maintenance schedule for the aircraft should include reference to any such material additional to the original design.

The original Maintenance and Repair Manual for the Chipmunk, reference C.M.R.-1, remains applicable. This volume is to be read and adopted in conjunction with Technical News Sheet Series CT(C1) as currently amended by de Havilland Support Ltd.

A separate manual for the Gipsy Major 10 Mk 2 engine is identified by the title 'The de Havilland Gipsy Major Series 10 Operation, Maintenance and Overhaul Handbook'. 'Modification and Technical News Sheets – Gipsy Major Series 10' are issued by Deltair Airmotive.

Numerous modifications and inspections in airframe TNS CT(C1) and in engine Modification and Technical News Sheets are mandated by CAP 476 and CAP 747. In particular, airframe component fatigue lives are subject to mandatory safe life limitations as published in the current issue of TNS CT(C1) No. 138.

8.0 Survey

As this AAN is raised for internal CAA purposes only, no CAA Survey Required

9.0 Issue of Certificate of Airworthiness

The following actions must be completed prior to initial issue of the Certificate of Airworthiness:

a) It must be verified that the documents or amendments to documents, and the placards defined under Section 5.5 above are as specified.

b) A familiarisation flight test must be carried out by the CAA, and the outcome must be satisfactory to the CAA.

10.0 Approval

Subject to the conditions of Section 6 above, this aircraft and any other of the same type so modified is approved for the issue of a Certificate of Airworthiness in the Standard Category, provided that it conforms to the contents of this AAN, is operated in accordance with the Flight Manual, and is maintained in accordance with manufacturer's requirements, or any other maintenance schedule approved by the CAA.

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M Poole

For the Civil Aviation Authority

Date 3 December 2009

This approval does not take effect until signature is present

EASA approval is not required – EC 216/2008 Annex II clause (d).
