



LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A

Issue 5	Correct broken hyperlinks, remove CAP747 GR13 reference (cancelled), amend TNS 170 inspection period.	Dated 02/10/18	JP
Revision A	Add comment in section 3.4 regarding heater pressure test.	Dated 21/06/19	JV
Revision B	Addition of Safety Spot articles.	Dated 04/12/19	MR

This TADS is intended as a summary of available information about the type and must be used during the overhaul, operation and permit revalidation phases to help owners and inspectors. Although it is hoped that this document is as complete as possible, other sources may contain more up to date information, e.g. the de Havilland Support (DHSL) website.

Section 1 contains general information about the type.

Section 2 contains information about the type that is **MANDATORY** and must be complied with. The annual Permit to Fly renewal (revalidation) process requires a Declaration by the inspector and owner that the Requirements of Section 2 have been complied with.

Section 3 contains advisory information that owners and inspectors should review to help them maintain the aircraft in an airworthy condition. If due consideration and circumstances suggest that compliance with the requirements in this section can safely be deferred, is not required or not applicable, then this is a permitted judgement call. This section also provides a useful repository for advisory information gathered through defect reports and experience.

Section 1 - Introduction

1.1 UK contact

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Website: www.dhsupport.com

1.2 Description

The DHC-1 Chipmunk 22 and 22A are two-seat, tandem, low-wing aircraft of riveted and spot-welded aluminium structure, intended for use as a post-war replacement for the Tiger Moth in the training role, manufactured in the late 1940s and 50s initially by de Havilland Canada and later by de Havilland in the UK, and in Portugal. This TADS deals only with the UK-built and Portuguese models.

The aircraft is fitted with a DH Gipsy Major 10 Mk 2 engine but some have subsequently been converted to accept a Lycoming O-360, as glider tugs, using an engine mount adapted from the design of that of the Beagle Airedale. For this reason the Lycoming-powered variant is not cleared for aerobatics.

De Havilland Support rescinded the Chipmunk's type certificate in April 2012 and subsequently the CAA approved LAA's application to take over the airworthiness administration of those Chipmunks whose owners choose to transfer from a CofA to an LAA administered Permit to Fly.



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A**

De Havilland Support provide the drawings and manuals for the airframe, a compilation of all current Technical News Sheets applicable to the type, titled TNS CT (C1), a technical support function and a Continued Airworthiness Service (CAS) option which provides subscribing individuals or groups with an update service for all technical and regulatory issues and copies of any new or amended TNSs. For the Chipmunk DHSL are presently the only body approved to carry out the calculation of accrued fatigue hours for the annual update of TNS 138 form 'C', based on the flight hours details provided to them by owners on TNS 138 form 'B'.

Section 2 – Mandatory information for owners, operators and inspectors

At all times, responsibility for the maintenance and airworthiness of an aircraft rests with the owner. Condition No 3 of a Permit to Fly requires that: *"the aircraft shall be maintained in an airworthy condition"*.

The Permit to Fly Operating Limitations document for a Chipmunk requires that: *"the aircraft must be maintained in accordance with the requirements of LAA Type Acceptance Data Sheet 950"* (this document). Specifically, Section 2 of this TADS describes those requirements. Declaration of compliance with this TADS means also that the relevant TADS concerning the engine, propeller and equipment fitted have also been consulted and the mandatory requirements described therein have been satisfied. The TADS number, along with the latest issue number must be quoted on applications to revalidate the Permit to Fly.

2.1 Lifed Items

DH TNS No 138 specifies retirement lives of certain airframe structural components, based on a fatigue analysis. This TNS is made 'legally' mandatory by AD G-2012-0001. For the avoidance of doubt, operation on an LAA Permit to Fly affords no alleviation with respect to retirement lives. The particular components affected by TNS 138 are:

- Fuselage centre section lower tie bar
- Wing attachment link plates and bolts
- Wing attachment top bolts
- Wing lower spar boom root inserts
- Wing lower spar boom and remainder of wing structure
- Tailplane front spar attachment brackets

The above components whose life is specified by mandatory Airworthiness Directives must be changed when due. Lifed items specified only by TNSs or by the manufacturer but not mandated by ADs are advisory in strictly legal terms. The owner is responsible for deciding whether to implement these advisory life limits.

Owners are required to send DHSL details of flight hours annually, using TNS 138 Form B, and update TNS 138 Form C accordingly to show accrued fatigue hours and fatigue hours remaining on each critical component. The latest update of TNS 138 Form C must be sent to LAA along with the annual Permit to Fly renewal package.



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A**

2.2 Maintenance Schedule

The aircraft must be maintained in accordance with one of the following maintenance schedules: either:

1. The CAA's Light Aircraft Maintenance Schedule, [CAP 411](#)

or

2. Technical leaflet [TL2.19](#) and associated Generic LAA Maintenance Schedules (tri-annual, annual and 50 hr checks) as downloaded from the [maintenance](#) page of the LAA website.

Notes:

- a. If maintained to the CAA Light Aircraft Maintenance Schedule, the alleviations specified in LAA [TL2.25](#), 'Alleviations to LAMS Schedule available to aircraft operating on an LAA Permit to Fly' are acceptable:
- b. An Annual Check must be carried out coincident with renewal (revalidation) of the Permit to Fly.
- c. Whether maintained to the LAMS Schedule or the LAA Generic Maintenance Schedule, the schedule should be customized to include any relevant special requirements provided in the 'DHC-1 Chipmunk Maintenance and Repair Manual', reference CMR 1.
- d. Whether maintained to the LAMS Schedule or the LAA Generic Maintenance Schedule, in order to satisfy the requirements of the de Havilland TNS's, which are a mandatory part of the aircraft's dataset, the schedule must be customized to include the actions called for by the TNS's from DHSL's TNS CT (C1) as listed below.

Those marked ** are legally mandatory.

<i>TNS no.</i>	<i>Description</i>	<i>Periodicity</i>
TNS 138	Mandatory life limitations**	Annually
TNS 165	X-Ray Undercarriage attachment casting**	Variable, see TNS
TNS 180	Engine mounting frame attach points, cracks**	3 years
TNS 183	Fuselage rear bulkhead, cracks**	3 years
TNS 186	Radiographic checks, tailplane support struts**	7 years
TNS 190	Engine removal, check mounting frame joints**	600 hours
TNS 121	Battery box installation	Variable, see TNS
TNS 150	Fraying of elevator trim tab cables	150 hours
TNS 152	Tailwheel yoke attachment bolt	300 hours
TNS 156	Fin structure	3 years/6 years
TNS 157	Tailplane structure	Variable, see TNS
TNS 158	Fuselage structure	Variable, see TNS
TNS 159	Control box rear cross member	600 hours
TNS 166	Flying controls – wing flaps	300 hours/6 years
TNS 167	Wing assembly	Annually
TNS 168	Engine mounting	300 hours
TNS 172	Brake calipers	300 hours/2 years
TNS 177	Aileron centre hinge	Review annually
TNS 178	Rudder assembly	3 years
TNS 184	Flap operating system	100 hour/annually
TNS 193	Fabric covering	Annually
TNS 199	Corrosion in flap centre hinge brackets	Variable, see TNS



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A**

2.3 Permit renewal procedure

The DHC-1 Chipmunk aircraft has been determined as a complex type primarily because the airframe includes a number of lifed items which are subject to individual fatigue limits; specific information about components affected by a fatigue life can be gained from current issue of [TNS CT\(C1\) No 138](#). For this, and other reasons, the annual renewal process differs slightly from applications involving simpler types; the following applies:

2.3.1 Inspector Qualification

Only LAA inspectors specifically authorised by LAA for Chipmunk certifications are approved to certify inspection of Chipmunk aircraft. A list of [Chipmunk-approved inspectors](#) can be found on the LAA website.

2.3.2 FWR-1 Application for Renewal

In addition to the FWR-1 Permit to Fly revalidation application form, the following documents need to be completed and submitted to LAA Engineering when applying for the Permit to Fly to be revalidated:

1. [LAA/FWR-1-Supp/Chipmunk](#)
2. A copy of the DHSL Annual Role Factor Certificate (TNS 138)
3. Inspector-validated DHSL Form C (TNS 138)

2.4 ADs - Per CAP 747 Mandatory Requirements for Airworthiness

Airworthiness Directives (ADs) must be complied with. Chipmunk ADs are published by the CAA in Section 2 of [CAP 747](#), Mandatory Requirements for Airworthiness.

See also [CAA Website](#) for details of any new ADs awaiting incorporation into CAP 747.

CAA AD No	Mod and TNS No	Description	Applicability/ Requirement
2794 PRE 80	MOD H181 TNS 111	Introduction of improved method of mounting fuel filter	Required mod standard
2795 PRE 80	MOD H188 TNS 111	Introduction of tungum rather than aluminium fuel pipe between fuel cock and fuel filter	Required mod standard
2796 PRE 80	MOD H207 TNS 117 Iss 4	Introduction of balanced type fuel vents	Required mod standard
2797 PRE 80	MOD H209 TNS 106	Introduction of flexibly mounted aerial	Required mod standard
2798 PRE 80	MOD H212 Part A	Sealing of vent fairing to prevent possible entry of fuel draining from vent pipes into fuselage after flying inverted	Required mod standard
2799 PRE 80	Mod H231	Provision of anti-spinning strakes	Mandatory for aerobatic and spinning clearance

**LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A**

CAA AD No	Mod and TNS No	Description	Applicability/ Requirement
2800 PRE 80	MOD H259	Alternative fire extinguisher 27N/299 and bracket 27N/149 in lieu of fire extinguisher 27N/12 and bracket 27N/13	Required mod standard
2801 PRE 80	MOD H323 TNS 171 Iss 1	Introduction of 'Aerobatics and Spinning Prohibited' placard	Mandatory if mod H231 anti-spin strakes not fitted
2802 PRE80	MOD H324 TNS 171 Iss 1	Introduction of spin recovery advisory placard	Mandatory if mod H231 anti-spin strakes are fitted
2803 PRE80	TNS 131 Iss 1	Engine throttle and mixture control rods. Possibility of control disconnection if rods incorrectly assembled, due to ball joints not being 'in safety'.	One-off replacement of control rod ball joint sockets under mod H.236 or as specified in TNS 131
2804 PRE 80	TNS 138 Iss 6	Mandatory life limitations. Revised / clarified life limits on wing lower spar booms, wing root end inserts, wing attachment links, fuselage lower tie-bars, wing attach bolts and tailplane attachment brackets	Recurring appraisal at each annual check. Superseded by AD G-2012-0001
2805 PRE 80	TNS 154 Iss 1	Fuselage assembly. Inspection of attachments of centre top turtledeck (between cockpits) for attachment to fuselage. Involves removing bolts to gain access, and checking bolt hole size, edge distance and all rivets in place.	One-off check
2806 PRE 80	TNS 161 Iss 3	Wing to fuselage attachment links. Checks to prevent possibility of chafing of the wing spar, tie bar or links due to misalignment or lack of radiusing of edges of links. Dimensional checks & shimming.	One-off in-depth inspection
2807 PRE 80	TNS 165 Iss 7	Wing assembly – undercarriage attachment casting. Stress corrosion cracking in casting	Recurring u/c leg removal and X-ray checks of castings in wings, at intervals dependent on extent of any cracking found. N/A if castings introduced by mod H.310 fitted
007-09-85	TNS 175 Iss 1	Fuselage centre section tie-bar	Reduced fatigue life on steel type tie-bar if either end has been bushed during manufacture – now dealt with by TNS 138

**LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A**

CAA AD No	Mod and TNS No	Description	Applicability/ Requirement
009-09-85	TNS 180 Iss 1	Engine mounting frame attachment points in front fuselage. Mandatory incorporation of reinforcement mod H.358 and subsequent recurring inspections for cracks	Inspections required at three year intervals
005-05-90	TNS 183 Iss 4	Fuselage rear bulkhead. Inspections for cracks.	Inspections required annually for original bulkheads and every three years for replaced or repaired bulkheads
021-08-91	TNS 186 Iss 2	Tail unit assembly – corrosion inside support struts	Radiographic checks of tailplane support struts required at 7 year intervals
001-06-93	TNS 189	Main undercarriage – examination of shock absorber strut plunger strut – bogus part	One-off check
003-08-94	TNS190 Iss 2	Engine mounting frames – examination of mounting frame joints	Requires removal of engine and engine mounting frames for inspection at intervals
004-02-95	TNS 194 Iss 2	Main undercarriage – examination of piston tube	One-off check
006-03-97	TNS 200 Iss 1	Reclassification of existing Mods to mandatory status	One-off check
007-03-97	TNS 201 Iss 1	Introduction of isolation switch to aircraft fitted with electric start	One-off check
014-11-97	TNS 176 Iss 2	Airframe – tailplane attachment brackets.	Life of 9984 fatigue hours imposed on tailplane attachment brackets. Original type brackets of unknown history to be replaced by mod H.357 type. Original brackets of known history and pre-mod H.357 type only permitted to continue in use subject to 6-monthly dye-pen checks
G-2009-0001	TNS 208 Iss 1	Flap operating system – latch plate – bogus parts	One-off check

**LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A**

CAA AD No	Mod and TNS No	Description	Applicability/ Requirement
G-2012-0001	TNS 138 Iss 6	Wings – recording and consumption of fatigue lives. Revised/clarified life limits on wing lower spar booms, wing root inserts, wing attachment links, fuselage lower tie-bars, wing attach bolts and tailplane attachment brackets	Recurring appraisal at each annual check Supersedes AD 2804 Pre 80
G-2013-0002	TNS 209 Iss 1	Tailplane attachment fittings – cracking and misassembly	One-off check to identify correct configuration of fittings and packing pieces, freedom from cracking. If fittings are aluminium type, check for cracks at six month intervals

2.4 Mandatory Permit Directives (CAP 661)

MPD 1995-01	Compliance with ADs	Continued compliance with all ADs and other mandatory requirements applicable when aircraft was on C of A.
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MPD 1995-001 is issued to make ADs mandatory for aircraft formerly eligible for a C of A but now issued with a Permit to Fly. There are currently no other MPDs published which apply specifically to the Chipmunk aircraft, however, there are two MPDs which apply to equipment which may be installed on Chipmunk aircraft. These are MPD 1998-019 Flexible Fuel Tubing, and MPD 2001-012, 'Sutton Harnesses – Integrity and Lifing'. These can be found in CAA [CAP 661](#).

Also check the LAA website for MPDs that are non-type specific ([TL2.22](#)).

2.5 Generic Requirements (GR) CAP 747 and Civil Aircraft Airworthiness Information and Procedures (CAAIP) CAP 562

Airframe

Item	Description	Requirement
CAP 747 GR No 8	Fabric covering	See GR for guidance (previously AWN 20)
CAP 562 Leaflet B-190	CO contamination	See Leaflet for guidance (previously AWN 40)
CAP 562 Leaflet 51-50 Leaflet 51-60	Metal structures & corrosion/protection	See Leaflets for guidance (previously AWN 73)



LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A

Propeller

Item	Description	Requirement
CAP 562 Leaflet 61-10	Eligible propeller type	If engine/propeller combination is not on Exemplar AAN, check Leaflet for listing or record individual approval (previously AWN 4)

2.6 Flight Manual

A copy of the appropriate Aeroplane Flight Manual must be available to the owner. This is DH 2.2 for the standard Chipmunk 22 and DH 2.3 for the Lycoming-powered variant. Where information contained with the Flight Manual conflicts with that on the Operating Limitations document, then the Operating Limitations take precedence.

2.7 Maintenance Manual

A copy of the appropriate Maintenance Manual must be available to the owner. This is the DHC-1 Chipmunk Maintenance and Repair Manual, reference CMR 1.

For engine, propeller and equipment refer to manufacturers' maintenance instructions.

2.8 Additional Placards

The Permit to Fly Operating Limitations document requires placards or instrument markings to be installed in accordance with the information shown thereon. The ANO also requires that an Occupant Warning placard be installed in full view of all occupants, so for all two-seat Chipmunks, two occupant warning placards will be required. Suitable placards are available from LAA HQ. The wording for the occupant warning placard is as follows:

"Occupant Warning - This Aircraft has not been Certificated to an International Requirement"

In addition, placards must be fitted restricting the aircraft to flight by day and under VFR only.

A fireproof identification plate must be fitted to the fuselage, engraved or stamped with the aircraft's registration letters.

Section 3 – Advice to owners, operators and inspectors

3.1 General

The Chipmunk is a relatively maintenance-intensive aircraft compared to most others on the LAA fleet, by virtue of its age and the number of mandatory special inspection items associated with it.

The annual check needed at transfer to an LAA Permit to Fly and at each subsequent permit renewal is essentially the same as would be required under the LAMS scheme, including any special recurring inspections for the type as specified on the Airworthiness Directives and TNSs, such as the checking the elevator trim tab control



LAA TYPE ACCEPTANCE DATA SHEET TADS 950 DHC-1 CHIPMUNK 22 & 22A

cables for fraying as called for by TNS 150 and X-Ray checking of undercarriage castings according to TNS 165.

Any spare parts fitted must be in accordance with the parts manual and fit for purpose. While there is no requirement for a 'form one' to accompany a spare part for a Permit aircraft, the inspector must be satisfied that it is the correct part and in good order, i.e. within manufacturer's limits and not worn out, time expired or bogus.

Unlike many other vintage aircraft types operating on Permits to Fly, the Chipmunk is a fully documented type and De Havilland Support can provide full drawing back-up, manuals, etc. On the plus side, this means that everything about the design is fully defined down to the last split pin and washer, and maintaining the aircraft to this standard should guarantee that the aircraft continues to perform exactly as it should. On the down side, for those with a yen to 'do their own thing' with their own custom tweaks and improvements, with a fully defined type like a Chipmunk any changes to the design standard, however small, have to be requested as modifications and only embodied if approved by LAA HQ. This is a different situation from most other LAA types where the design drawings are no longer available, or only in a very basic form. With those ill-defined types, owners and their LAA inspectors are left partly to their own devices to keep their machines airworthy by following 'standard aviation practice' rather than conforming to drawings and manuals.

As an example of the LAA mod requirements, in some cases LAA could accept imperial AN equivalent hardware being substituted for the original AGS parts, but this would require a modification being applied for from LAA Engineering and the alternative parts only fitted if the modification has been approved for use on this individual aircraft by LAA HQ. The same would go for the use of a different type of wing fabric, different locations of access panels or drain holes – these latter being fully specified on the drawings. Just because one Chipmunk might be seen with a particular 'mod' in place doesn't mean that others can automatically assume this is an approved alternative and follow suit. For full details of the LAA procedures for mods and repairs, mod application forms etc, refer to '[mods and repairs](#)' section of the LAA website - or call LAA HQ.

Due to the additional complexities associated with the Chipmunk, Chipmunk aircraft maintenance (including transfers) may be dealt with only by inspectors with a specific approval to inspect this type. To that end the LAA's Chief Inspector has compiled a list of those who are either licensed on type or who have a long history of experience with the type and are acceptable to the LAA to deal with the Chipmunk.

3.2 Standard Options

The standard engine is a DH Gipsy Major 10 Mk 2 with Fairey Reed A66753/X1 propeller. Alternative propellers are as listed in [CAP 562](#) Leaflet 61-10

Alternatively, the engine may be replaced with a Lycoming O-360-A4A, O-360-A1A or O-360-A4M, with propeller type Sensenich 76EM8S5-0-60 or as listed in [CAP 562](#) Leaflet 61-10. When fitted with the Lycoming engine, alternative operating limitations and a different flight manual applies.

3.3 Manufacturer's Information (including Service Bulletins, Service Letters, etc)

Manufacturer's information takes the form of DH Technical News Sheets, (TNSs, originally published by de Havilland, subsequently by BAe and latterly by DHSL). In



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A**

the absence of any over-riding LAA classification, inspections and modifications published in the TNSs should be satisfied according to the recommendations therein. It is the owner's responsibility to be aware of and supply such information to their Inspector.

The indicated compliance level shown below is as recommended by DHSL.

The LAA considers it mandatory that owners and maintainers have access to, and review Chipmunk TNSs. Regarding compliance, TNSs not mandated by ADs are advisory in strictly legal terms; however, owners, who are ultimately responsible for deciding whether to implement a TNS, should note that their duty of care might well be tested if they elected to ignore such advice and this were to result in an accident or injury.

TNSs are listed below as a quick reference guide/checklist but the ultimate source is the information provided by DHSL via the DHSL Continued Airworthiness Service.

DHSL Technical News Sheets - TNS CT(C1) Series – TNS Not Mandated by AD Action:

TNS CT (C1) No.	Issue	Description	Applicability/ Requirement
1	25	Index of TNS	Information only
2	5	Future arrangements for type support	Information only
3	1	Propeller hub - shrinkage washers. In order to ensure at least 1.5 threads protruding, number of shrinkage washers on prop bolts may need to be reduced from three to two, when a metal propeller and metal packing pieces are fitted	Information only
71	2	Propeller spinner assembly. Tendency for original type spinners to crack. This TNS allows for aircraft to be flown with spinner nose cap removed (but not backplate) or fitment of later type cast spinner nose cap p/n A.66912	Information only
72	2	Night flying equipment. Modifications to fit lighting and substitute luminous fuel gauge for night flying clearance	Information only. Night flying n/a to LAA aircraft at this time unless aircraft approved.
80	2	Windscreen and sliding canopy. Details of problems with chafing of canopy top structure, redundant holes in canopy frame and repair schemes/mods to deal with both problems	One-off inspection/ rectification
94	3	Engine control rods – fouling. Details of problems with fouling of control rods on fairlead on front seat diaphragm, inspection and rectification. See also TNS 116.	One-off inspection/ rectification
103	4	List of Chipmunk modifications	Information only
110	2	Fouling between oil tank and fireproof bulkhead. Inspection and rectification	One-off inspection/ rectification

LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A

TNS CT (C1) No.	Issue	Description	Applicability/ Requirement
116	2	Engine control rods – alignment, fouling and fracture at the rod end. Details of problems with fouling of control rods on fairlead on front seat diaphragm, and at firewall, leading to wear, and of fracture of the rod possibly due to incorrect rigging of controls. Inspection and rectification.	One-off inspection/ rectification
121	4	Fuselage assembly – battery box installation. Corrosion and cracking. Inspection and rectification, preventative measures.	Recommended recurring inspections at 10, 50 and 100 hour intervals re battery vent and drain, acid level in battery and washing, rinsing re-protecting of battery bay respectively
122	5	Inspection of elevator hinge ribs and brackets, elevator nose skin near outer hinge and hinge bolts	Recurring inspections at 3 year intervals
123	2	Re-classification of mod H.217 (adding bonding sockets for use when re-fuelling) as optional	Information only
132	3	Leakage of brake fluid onto radio and voltage regulator. Occurs due to spillage while re-filling, if seal in fuselage skin not effective.	Not applicable if brake reservoir mounted on front face of firewall
139	2	Elevator controls, connecting rods. Possible incorrect positioning of inspection/alignment hole at the adjustable end of the pushrod	One-off inspection/ rectification
141	2	Elevator layshaft bracket. Inspection for cracking of stop bracket and modification of bracket to prevent cracking, by fitting longer stop blocks as shown in TNS 141.	One-off inspection and modification
142	-	Chipmunk spin characteristics	Information only See also CAP 562, Leaflet B-250
145	2	Wheel brake controls. Possibility of fracture in eye-end of turnbuckle at front cockpit brake lever if damaged during maintenance. Recommended inspection of eye end for damage. Not applicable if alternative eye end introduced by mod H.264 incorporated.	One-off check
150	1	Fraying of elevator trim tab cables. Requires removing rear seat for access.	Recurring checks for fraying at 150 flying hour intervals
151	1	Front rudder bar. Potential for four bolts to be missing from assembly due to confusion at assembly process.	One-off check
152	1	Tailwheel yoke attachment bolt. NDT inspection for fatigue cracking at base of thread using NDT. Failure of bolt can lead to restricted elevator travel.	Recommended recurring NDT checks or replacement at 300 hour intervals



LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A

TNS CT (C1) No.	Issue	Description	Applicability/ Requirement
156	5	Fin structure. Inspections for cracking in rear spar in area adjacent to lower hinge brackets, area adjacent to upper hinge brackets and corrosion of fin structure	Recurring inspections for cracks recommended at 6 year or 300 hrs intervals, whichever sooner. Fin corrosion checks recommended at routine inspections
157	3	Tailplane structure. Inspections for cracking and in some cases buckling and repair of redundant holes in: front spar web, centre ribs, tailwheel shock absorber strut attachment, centre bottom skin, outer elevator hinge bracket rib support angle, rear spar, front spar joint	Recommended inspections at various intervals. Repair schemes and replacement parts described
158	3	Fuselage structure. Inspections for loose rivets at firewall, cracking in bottom of number 1 former, engine cowling attachment at firewall, former 13 and top of number 1 former.	Recurring inspections Firewall rivets: annually; Bottom of number 1 former: 300 hrs; Cracking of former 13: 600 hrs; Engine cowling and top of former number 1, frequency not specified but suggest annually
159	1	Control box rear cross member. Inspection for bowing and cracking	Recurring inspections at 600 hour intervals
160	2	Wing fatigue. Largely superseded by TNS 138, but details eddy current crack test applicable to wings fitted with aluminium type spar inserts rather than steel ones, and possibility of bushing aluminium inserts if not cracked	One-off eddy current test (for aluminium inserts only) as an interim life extension
162	2	Structural inspection of fabric covered components. This TNS specifies inspection panel positions required to allow proper inspection of internal condition of fabric covered control surfaces and wings	One-off requirement to fit inspection rings/panels in accordance with instructions in this TNS or, for aircraft covered with Ceconite or Poly-fiber, the equivalent requirements of mod H.388



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A**

TNS CT (C1) No.	Issue	Description	Applicability/ Requirement
164	1	Protection of starter circuit of aircraft fitted with electric start. This involves the introduction of a starter warning light to comply with former Airworthiness Notice 33	One-off requirement to install starter warning light to comply with AWN 33
166	5	Flying controls – wing flaps. Cracking in area of flap root end and hinge attachments due to stepping on flap root end, compounded by corrosion caused by absence of water drain holes and inspection access	Recurring inspections at 300 hour or 6 year intervals, whichever comes first
167	3	Wing assembly. Sundry problem areas and highly loaded areas deserving of extra vigilance during inspections Recommendations for special attention to flap and aileron centre hinge support ribs, undercarriage mounting area and main spar root end fittings	Recommendations regarding possible buckling damage to upper surface of wing nose skin between ribs 5 and 6, and inspections for possible cracks in wing main spar lower flange at root end. Dressing out nicks in spar flange caused during maintenance.
168	2	Engine mounting. Cracks in engine mount frame and in rear adjusting sleeve. Integrity of engine to engine mount attaching bolts and engine mount to fuselage attaching bolts, and importance of correct torque tightening of forward engine mounting bolts	Recommendations for crack checks and replacement bolts on an opportunity basis at engine change. Recommendation to check sleeves visually on recurring basis at 300 hour intervals
170	2	Flap layshaft and operating cam – examination for cracking. Check for cracking or fracture of braze joining the arm and the associated tube which together form the operating rod p/n C1.CF.256A, and also for cracking or fracture of the flap operating cam in vicinity of cable attachment pin hole.	One-off check recommended plus 300 hour repeat inspection



LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A

TNS CT (C1) No.	Issue	Description	Applicability/ Requirement
172	3	Brake unit – inspection of callipers for cracks	Recommended recurring eddy current or dye-pen checks of brake callipers every 2 years or 300 flying hours, whichever sooner. Checks considered essential by BAe, though not mandated by AD action. Some aircraft may have Cleveland conversion, in which case not applicable [but check FAA ADs for any applicable to Cleveland]
173	1	Generator to suppressor cable connections. Advice about possibility of chafing of generator wiring possibly leading to cockpit fire.	One-off check for clearances and signs of chafing
174	1	Main undercarriage installation. Advice on removal / re-installation of undercarriage legs and possibility of corrosion in the outer tube of the upper leg rendering this difficult. Advice on alternative types of mainwheel tyres. Some aircraft may have Cleveland conversion, in which case not applicable [but check FAA ADs for any applicable to Cleveland]	One-off check on type of wheel, recurring inspections for loose brake drive blocks if original type wheels fitted. Advice on possibility of brake drive blocks in original AH.9389 type wheels working loose, and modification to original type wheel or modified 51981 type wheels (DH mod H.260 or Dunlop mod 4179) which were introduced to avoid this problem
177	2	Aileron centre hinge – inspection for corrosion and damage in thin sheet metal structure, emanating from the closed box section	Inspection recommended whenever fabric removed from ailerons

**LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A**

TNS CT (C1) No.	Issue	Description	Applicability/ Requirement
178	2	Rudder assembly – wear and means of bushing of holes in rudder operating lever, also inspection of rudder hinge fittings for scoring and indentations	Inspections recommended at three year intervals and when maintenance has been carried out in this area
181	1	Fuel cock, wear in selector lever catch. Recommended installation of mod H.350 to prevent inadvertent operation	Information/ Recommendation
182	1	Caution regarding use of low tensile steel bolts in certain applications, danger of over-torquing and incorrect location of high strength and low strength bolts	Information only
184	4	Flap operating system – cable failure and latch plate wear – repetitive inspections	Inspections at 100 hour or annual check whichever first, requiring removal of rear seat for access
185	1	Wing assembly – corrosion under walkway	One-off check
187	1	Internal corrosion of tailwheel fork, internal corrosion treatment	One-off check
193	3	Fabric covering	Information only. Fabric installation, inspection, testing.
197	1	Flap return spring – introduction of check cable under MOD H.240	One-off check
198	1	Aileron outboard hinge – introduction of HTS A25 17G bolt	One-off check
199	3	Corrosion in flap centre hinge brackets	Recurring checks including six yearly radiological checks if corrosion found
202	3	Gipsy engine continued airworthiness data	Information only
203	1	Optional addition of cover to terminal block introduced by Mod 379	Applicable only to ex-Army Air Corps aircraft. Information only
205	1	Propeller types approved for use on Chipmunk, and issues re blade thickness	Information only

3.4 Special Inspection Points

See section 3.3. The Chipmunk TNSs provide details of many special inspection points applicable to the type, derived from many years of experience with it in service.

As the Chipmunk features large wing flaps that are only linked together via separate small diameter stranded steel control cables which route round multiple small pulleys, particular care is needed to ensure that the cables remain in good condition because failure of a cable could lead to an uncontrollable asymmetric flap condition.



**LAA TYPE ACCEPTANCE DATA SHEET
TADS 950
DHC-1 CHIPMUNK 22 & 22A**

Note that under LAMS, the heater needs to be pressure tested annually.

3.5 Weight and Balance

Many Chipmunks have been found to suffer from an aft cg problem when the weighing results have been studied, which means that passenger weight must be severely restricted especially when fuel state is near empty, or if any baggage is carried in the rear baggage space. In many cases this has been found, on deeper investigation, to be due to erroneous weighing results. Errors in weighing may occur due to weighing the aircraft incorrectly with the canopy slid back, or without a full oil tank, or in the incorrect weighing attitude. If the empty centre of gravity is less than 5.0 inches forward of datum, it is recommended that owners double check the weighing figures and weighing method.

3.6 Operational Issues

Several recent instances of start-up fires with Rapide aircraft, and one Chipmunk in which a combination of flame and unburnt fuel emitted from the exhaust pipe has set fire to the aircraft's fabric covering have highlighted the importance of following correct starting procedures, priming, etc. They have also raised the possibility that the more lightweight modern synthetic fabrics that are commonly substituted nowadays may have lesser thermal mass than traditional cotton and linen fabrics and consequently may be more easily ignited by a short exposure to flame.

The following *Safety Spot* articles are relevant to de Havilland Chipmunk aircraft:

Light Aviation [May 2017](#)

DHC-1 Self disconnecting controls

Ball and socket throttle and mixture control connections can wear so much that the ball can escape the socket and the control will be stuck in its previously set condition. Check with a little wiggle that there is no perceivable free play.

Light Aviation [Feb 2017](#)

DHC-1 Runaway after engine start

Aircraft hand started on the ground with passenger in the rear seat ran away after startup and the tailwheel was damaged after it struck the boundary between the concrete and grass.

Light Aviation [Oct 2013](#)

Tailplane attachment cracking & misassembly

Chipmunk tailplane attachment brackets inspection to ensure they are of correct steel type and fitted properly with appropriate packing plates. TNS 209 mandated by CAA AD.

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Please report any errors or omissions to LAA Engineering: engineering@laa.uk.com