BRITISH GLIDING ASSOCIATION

Technical Committee

TNS 3/4/90

PART 1 Airworthiness "Aggro" - Please add to the 1990 Yellow Pages

1.1. T.61/SF25 Series Falke Rodents have taken up residence in the wing of one at Coventry Airport (some "chemical" damage to plywood in the trailing edge!). A gaiter has been fitted to a control run in an attempt to deny access.

1.2. T.61/SF25 Series Falke Front bracket on the tailplane developed fatigue cracks, evaluating from the edge of the welded strengthening plate. (Sketch herewith). Reported by Newark & Notts G.C.

1.3. Ka7 Tubes around the wheel box corroded through, caused by inadequate drainage (and corrosion protection?) between the wheel fairing and the tubes. (sketch herewith). Reported by Newark & Notts G.C.

1.4. IS29D Flap Lever interference with the airbrake lever. Sketch herewith, shows simple modification to prevent unlocking of the flaps, accidentally. (Reported by Peter Wells - sketch herewith).

1.5. DG400 Vibration Damage to the Powerplant Tech-Note 826/22 (from the agents) requires inspection and modifications.

1.6. PA25 (Pawnee) Tailplane Bracing Wire adjusters Extract from G.A.S.I.L. (herewith) is self-explanatory, and should form part of daily inspections. Applies also to PA18 (cubs) etc.

1.7. PA18 - Super Cub (tug) Axle Sheared Extract from G.A.S.I.L. (herewith) draws attention to the very high duty cycle of tug aircraft, which requires detailed inspection for fatigue damage to undercarriage structures, not only daily, but also at 50HR inspections.

1.8. Chipmunk Flap Cable failure G.A.S.I.L. extract highlights this recurring defect.

1.9. Marvel-Schebler Carburrettor Mixture Settings G.A.S.I.L. extract on Beech Musketeer could apply to any carburrettor on which the seals have been removed. If you have a "black" exhaust or abnormal fuel consumption - check your settings.

1.10. Robin DR 400 Severe Corrosion of Longeron G.A.S.I.L. extract requires no elaboration!

1.11. DG300 Undemanded Undercarriage Retraction Undercarriage lever restricted from moving fully forward, by the locking pawl fouling on the metal end plate of the rubber down lock, wearing away the rubber.

Correct manipulation of the selector lever, with the operating knob rotated IN BOARD is essential. (Reported by Two Rivers G.C.)

1.12. Curtiss (Fuel System) Drain Valves should be modified as per attached (A.A.I.B.) sketch to prevent them locking "open" with possible engine failure. (sketch herewith).

1.13. PA18 (Cub) severely corroded fuselage structure. G.A.S.I.L. photograph (herewith) requires inspection and preventitive corrosion protection.

1.14. Low Oil Pressures Defective Champion filters. (G.A.S.I.L. herewith) requires no explanation.

PART 2 GENERAL MATTERS

2.1. PA18 - 180 - Hoffman (2 Blade Propeller) HO-27-HM186-135 propeller is now approved. Deeside G.C. have C.A.A's Type Approval Note.

2.2. Ceconite 7600 Fabric Covering Scheme is recommended by Blackpool & Fylde G.C. Details from Light Aero Spares. 040-928-578 (Devon).

2.3. C.A.A. Maintenance Publication "Registration, Certification and Maintenance of Aircraft", (CAP 396) has just been re-issued and is very good value at £1.50 from C.A.A. Publications, Greville House, 37 Gratton Road, Cheltenham, GL50 2BN.

2.4. "MORE ABOUT MOGAS" P.F.A. publication (£1.45) is worth reading from P.F.A., Terminal Building, Shoreham Airport, Shoreham-by-Sea, Sussex BN43 5FF.

C.A.A. Airworthiness Notices 98/98A have been re-issued with effect March 1990 on this same subject.

2.5. Portable VHF Transmitter/Receivers require licencing by D.T.I. (01-215-2024)

2.6. EON BABY - Port Wing Wanted J.R. Edwards, 15 Wroxham Road, Langney, Eastbourne, East Sussex, BN23 8DW.

2.7. C.A.A. Light Aircraft Maintenance Schedules (Blue Book. L.A.M.S. CAP 411) which is the only approved schedule for S.L.M.G.s. and tugs, is available in proforma format as a record of maintenance document, from the B.G.A. office. It should be adopted by all operators, and submitted when completed to the B.G.A. office when C.A.A. renewals are being submitted. (copy herewith).

2.8. IMPORTATION AND CERTIFICATION OF AIRCRAFT not exceeding 2730 kgs (C.A.A. leaflet herewith).

C.A.A. Airworthiness Information Leaflet (herewith). Stress the correct procedures and documentation required when importing aircraft

including S.L.M.G.s. Without an Export C. of A. you enter a minefield!

2.9. Engine failure rates Statistics from U.S.A. indicate that the Lycoming O-360 series engines have the lowest rate at 0.58 per 100,000 hours in the PA28-180. These figures would not include cracked cylinders!

2.10 B.G.A. Inspector's Courses (ab initios & refresher). Please refer to TNS 1/90

2.11. Tug Exhaust Silencers Gomolzig Exhaust silencers are now C.A.A. approved for PA18-150/180, Robin DR 300/400 and Citrabria. Details from Skycraft Services Ltd., Albany House, Silver Street, Litlington, Cambs SG8 0QE. tel: 0763 852150

R.B. STRATTON
CHIEF TECHNICAL OFFICER
28.3.1990.

ISSN 0309-667X

Civil Aviation Authority

General Aviation Safety Information Leaflet

Safety Promotion Section
Aviation House, South Area
Gatwick Airport, West Sussex, RH6 0YR
Telephone – (0293), Safety Prom 573225/6, Exchange 567171
Telex – 878753, Facsimile – (0293) 573999

16 March 1990

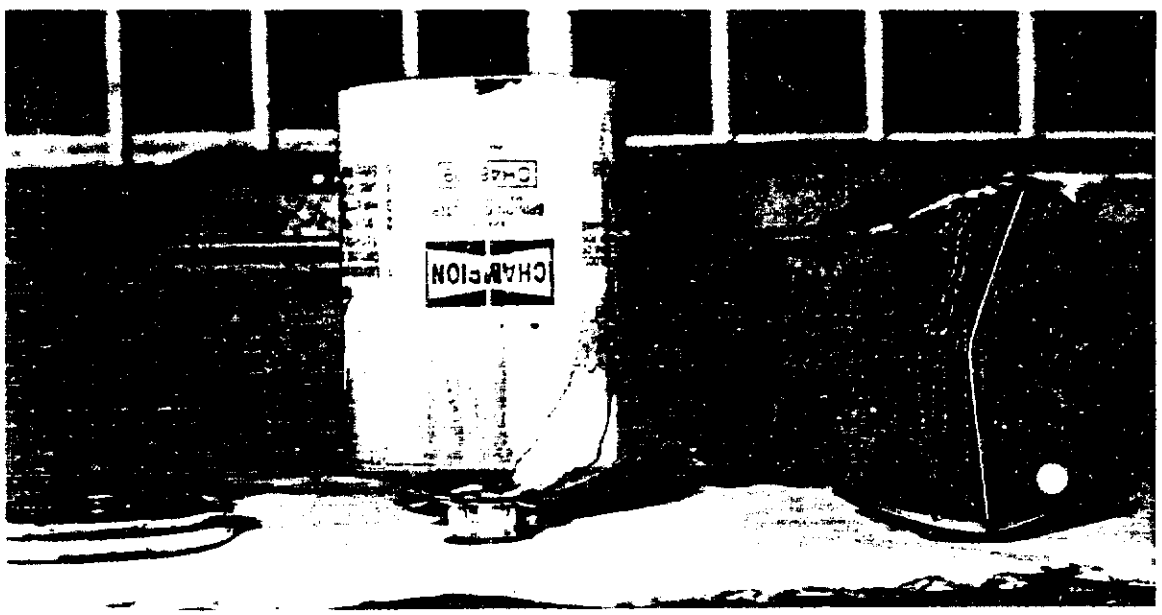
3/90

1 LOW OIL PRESSURE - OIL FILTER INTERNAL ELEMENT COLLAPSED

P/E

Aircraft : Cessna 421 Golden Eagle
Date : January 1990

The aircraft was in for a check with reported low oil pressure in the right hand engine. The oil filter, Champion Part No CH48109, was pulled out and cut open for examination. The internal filter element had collapsed. The left hand engine filter, also from the same batch, was found to be partly collapsed in a similar manner.



An examination of this batch of oil filters, revealed that the internal composition was quite different from those of the later batch.

Two filters from a later batch were fitted and no further defects were found during the check and investigation into the problem. Engine runs were satisfactory with oil pressures within limits.

CAA Comment:
In January 1990, Champion issued an Aviation Action Alert which requested the recall of certain filters of the type noted above. This Action Alert No 90-2 cancels and replaces the Champion Aviation Action Alert No 89-7R.

In order to identify the broad subject matter each item is classified as follows:

Operational items mostly of interest to pilots — P
Airworthiness items mainly for engineers — E

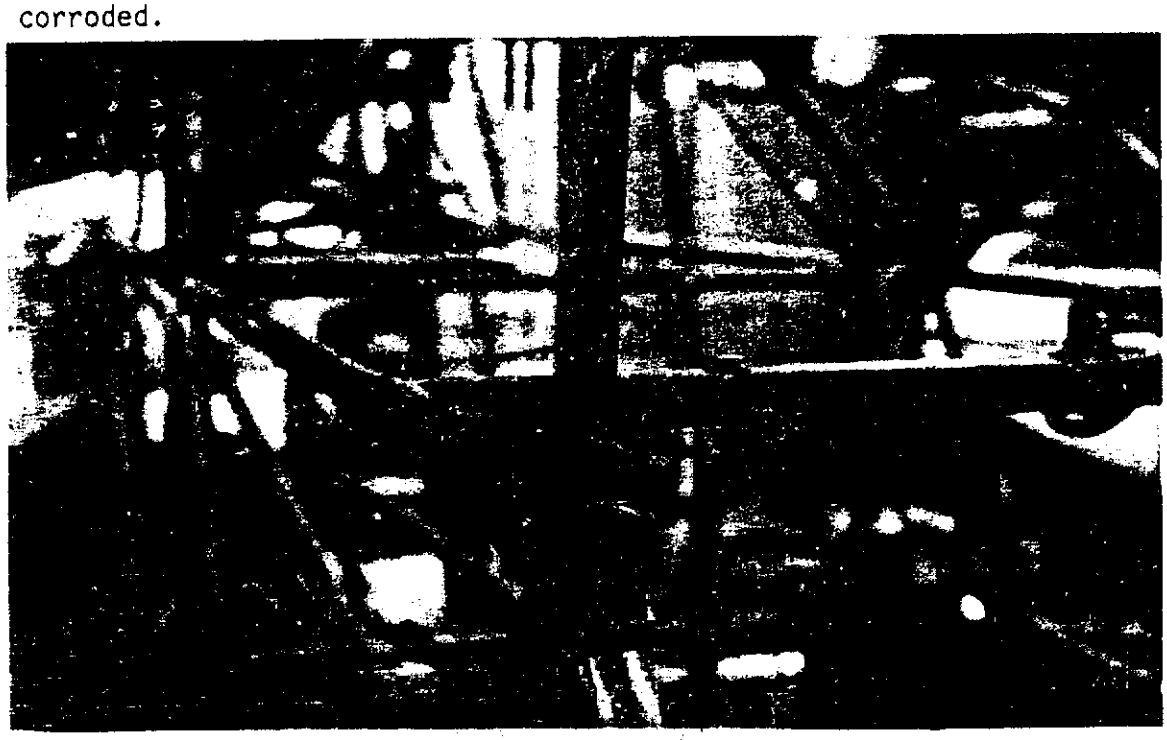
Engineers Supplement

SEE ALSO P/E ITEMS IN MAIN GASIL

E1 FUSELAGE FRAME SEVERELY CORRODED

Aircraft : Piper PA18 Super Cub, built 1954
Date : December 1989

During preparation for recovering the fuselage, corrosion was found in the rear sections of the rear window channels. When removed, the longerons were found corroded.



Further investigation revealed serious corrosion in several of the boxed in sections around the cockpit with some structural members having to be replaced.

Piper Service Bulletin 819 does not mention the Piper PA18 although the structure is similar to others of this type.

The reporter states that rust staining was visible in a few places where water had drained out of some sections.

CAA Comment:
Clearly this is an area requiring careful inspection.

E2 TORQUE LINK PIN FAILURE

Aircraft : Slingsby T67B
Date : December 1988

During a fifty hour maintenance check, it was noticed that the left hand main landing gear torque link upper spindle had broken and resulted in the top retaining lugs being bent and half the spindle was missing. Examination showed that the upper spindle had broken at the grease nipple bore hole.

CAA Comment:
Slingsby Information Bulletin No 13 issued in November 1989 highlights the need for proper lubrication which appeared to be the cause of the above occurrence.

2. EDITORIAL

P/E

As part of our continuing programme to improve the content and presentation of GASIL, readers will have noticed that the Frequency Changes Sheets are now printed on coloured paper. It is hoped that Flying Clubs display the up to date Frequency Changes Sheet on their Club noticeboards and the eye catching colours should help to ensure that it is changed regularly and kept current.

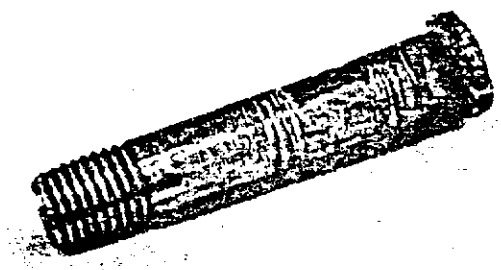
Enclosed with this issue of GASIL are the indexes for 1989 split into subject matter and aircraft type. In addition, for readers who have received GASILs prior to 1 January 1989, the index for 1988 is enclosed.

3. TAIL PLANE BRACING WIRE ADJUSTORS

P/E

Aircraft Type: Piper PA-25 Pawnee and Piper PA-18 Super Cub
Date: October 1989

The pilot was doing a pre-flight inspection of a Piper Pawnee when it was noticed that there appeared to be nothing to hold the lower front left hand tail plane bracing wire to the fuselage brackets. Although the wire appeared to be tight when 'plucked', ie. giving a resonant note, a gentle upward pressure on the tailplane resulted in the bracing wire popping out. On examination it was found that the shoulder on the adjuster had completely disappeared. It is not known how long the aircraft had been in this state but judging from the amount of dirt on the threads of the bracing wire, it must have been like it for some considerable time. The adjustor was replaced and a check carried out on the other bracing wire. Some five months later, the same pilot carried out a similar pre-flight inspection on the aircraft and paid particular attention to the same area. It was noticed that the lower right hand adjustor was starting to break up.



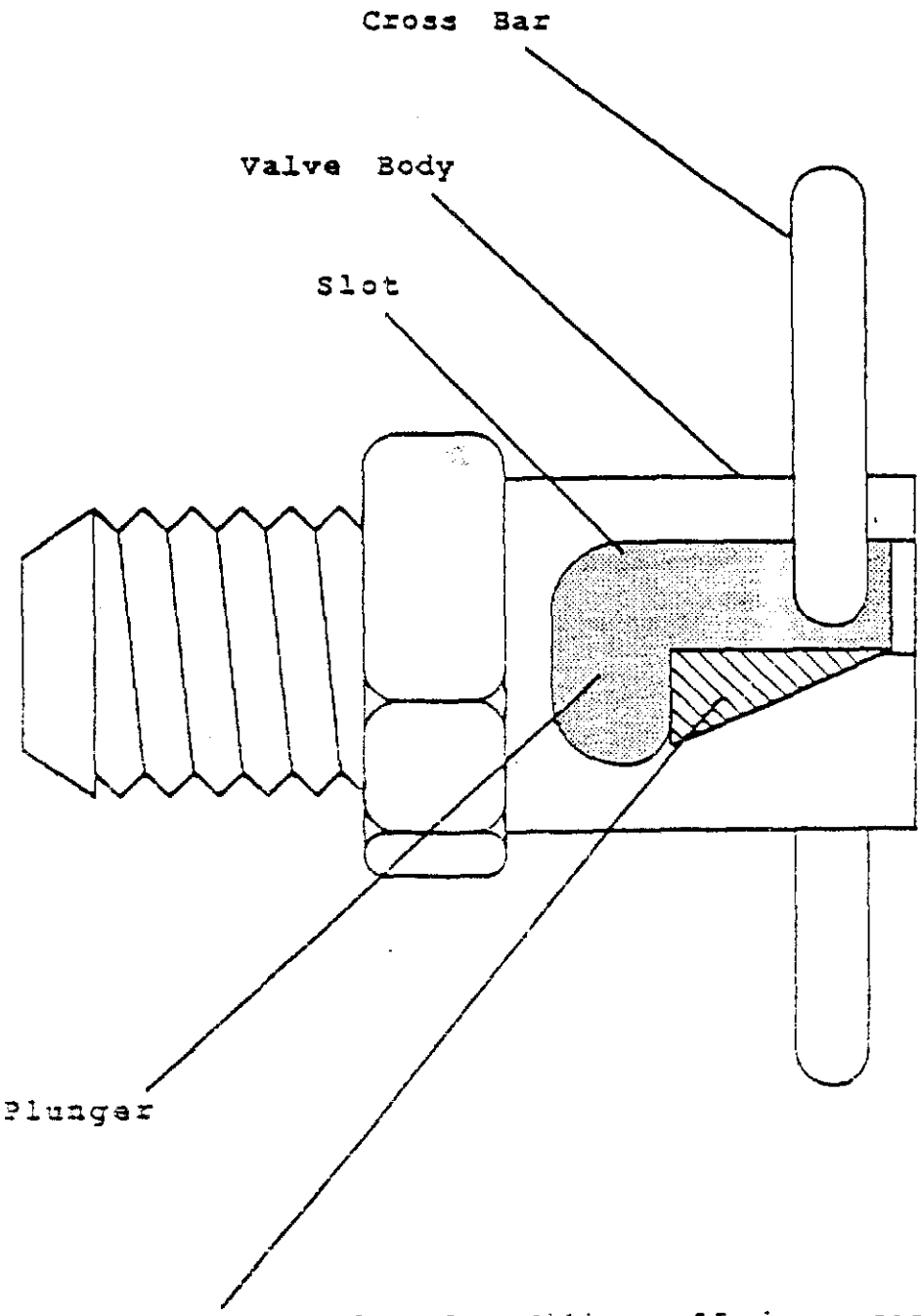
The pilot believes that, although this defect is probably a result of high aircraft usage, the position of the adjustors will result in ready accumulation of dirt (especially when operated off grass) and is, therefore, not easily spotted at an early stage.

A reporter investigated the matter further and found that the Clubs Super Cub needed three adjustors changing during the C of A as the photograph shows.

CAA Comment:

The aircraft involved are used for glider tugging. It is urged that pilots and engineers take special care when inspecting these components.

SCHEMATIC OF CURTISS DRAIN VALVE



Shaded area of slot for filing off in accordance with CSE Service Bulletin 6/75 (schematic only)

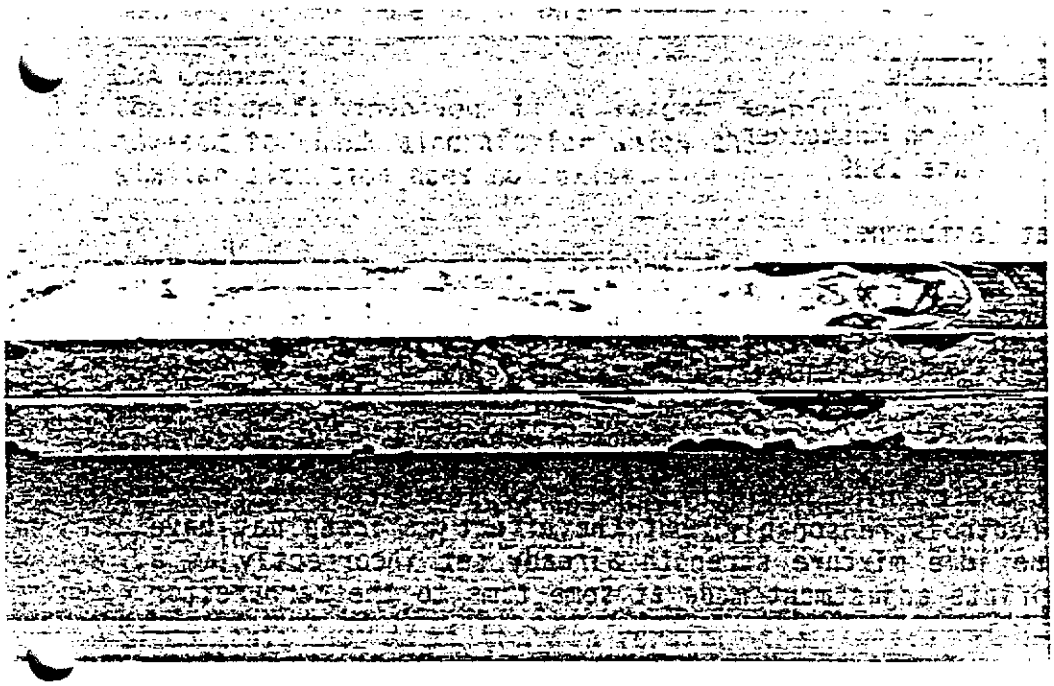
FIG 1

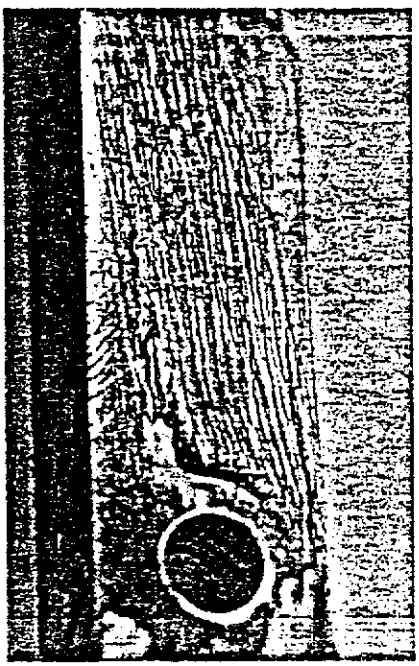
SEE ALSO P/E ITEMS IN MAIN GASIL

E1. WING/FUSELAGE LOWER LONGERON TIE BARS - SEVERE CORROSION

Aircraft Type : Robin DR400
Date : March 1988

The aircraft was undergoing its C of A inspection during which severe corrosion of the wing/fuselage lower longeron tie bars was found at the left hand side rear end of the tie bar. Other corrosion, which was less severe was found elsewhere on the tie bar. Both tie bars were changed and the new parts were given additional corrosion protection before fitting to the aircraft.





CAA Comment:
The photograph shows the areas to inspect, although the worst corrosion has been removed to reveal the depth of the corrosion.

E2. LANDING GEAR AXLE SHEARED

Aircraft Type : Piper PA-18 Super Cub
Date : June 1989

The aircraft was taxying to the launching point before the commencement of the glider-towing flight. During taxying, the right hand wheel came off due to the landing gear axle shearing. The aircraft tipped onto its nose and the propeller was damaged.

CAA Comment:
It may be that this aircraft had been subject to higher than usual number of landings due to its usage and this caused the axle to shear. However, axles are an area which merit close inspection.

E6. RIGHT HAND FLAP CABLE FAILED

Aircraft Type : DHC-1 Chipmunk (Military operated)
Date : September 1988

Prior to touchdown, the aircraft veered to the left and rolled right. The pilot applied full power retracted flaps and carried out a circuit and subsequent flapless landing. It was found that the right hand flap operating cable had snapped in the area of rotation around the pulley assembly.

Since this is a military aircraft, the action taken by the Services includes lubrication of the pulley every 300 hours and a check for alignment and freedom of movement of the pulley. In addition, the Services propose action to introduce a revised method of assembly for the flap control cable swivel pulley assembly at the wing root.

E4. AIR METERING PIN SETTING

Aircraft Type : Beech Musketeer
Date : June 1989

Reportable accident at Eastborne.
Extracts from AAIB bulletin.

During a local flight, with three persons aboard, the engine failed to respond to an increased power setting and the aircraft crashed on the beach causing injuries to all passengers.

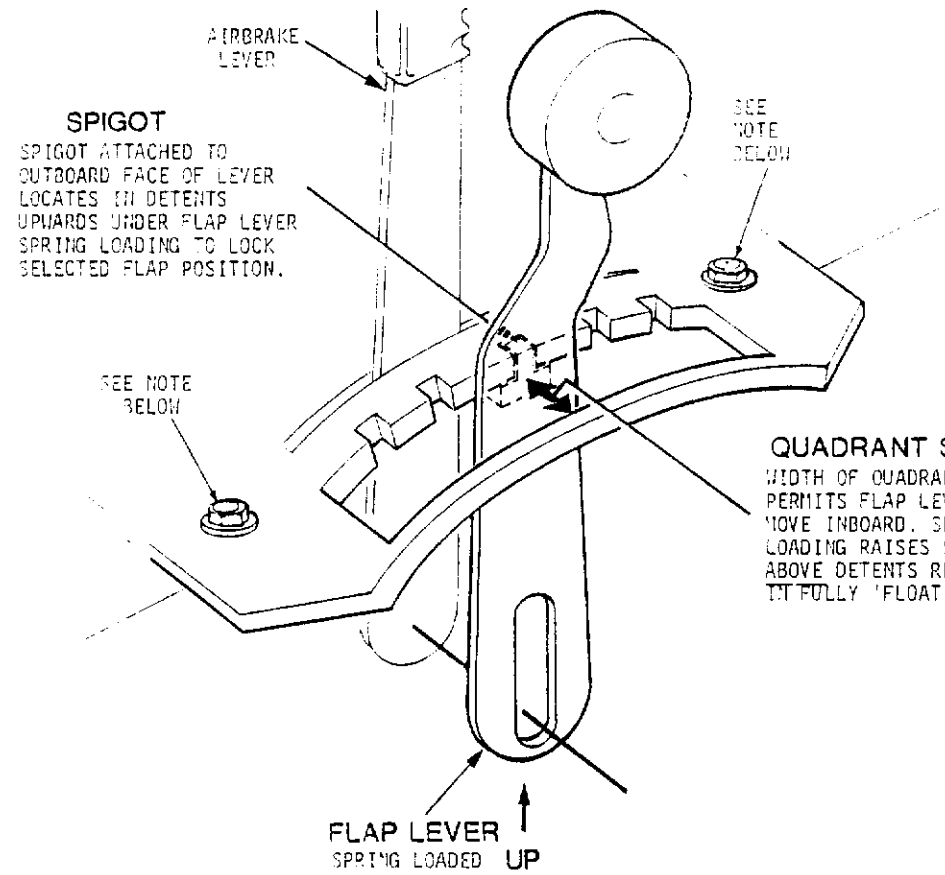
The cause of the accident is believed to be the onset of carburettor icing when flying in conditions of high humidity. It is believed that the pilot operated the engine controls reasonably, but the effect of icing may have further influenced the idle mixture strength already set incorrectly as a result of an inappropriate adjustment made at some time to the carburettor air metering pin setting.

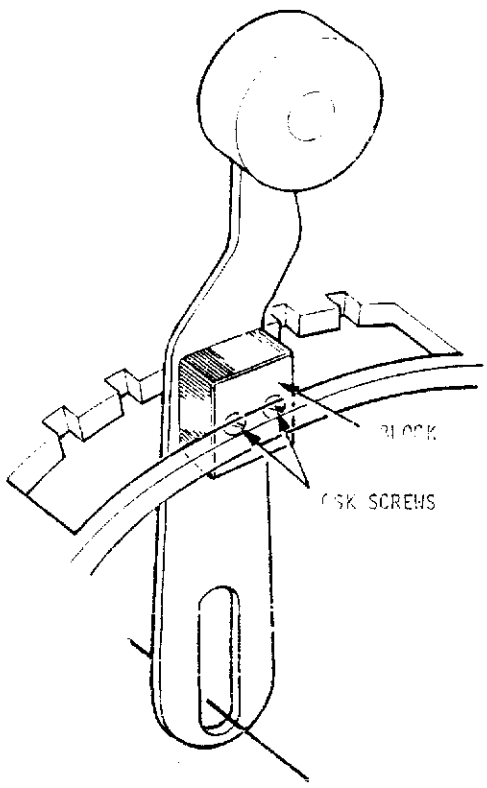
During the AAIB's investigation, it was noted that the wire locking for the air metering pin plug did not have a seal. Such a seal is normally installed at initial assembly or overhaul of the carburettor and the plug should not require any disturbance between carburettor overhaul periods since the setting of the air metering pin is unique for any model of carburettor.

The plug was therefore removed and the setting of the air metering pin checked with a special M-94 gauge (used for initial setting up of the carburettor type). It was found to be set at five and half turns in from the flush datum position on the M-94 gauge, whereas the correct setting is two and a quarter turns in from the datum position. Although the incorrect setting would not affect performance of the engine at high power settings, it would affect the mixture strength during operation in flight at low power settings and at idle. During such operation in conditions of high humidity, a combination of the incorrect setting and a certain amount of carburettor icing present could be expected to have considerable effect on the mixture strength, possibly creating a condition in which complete loss of power could occur in a power-off descent.

AAIB were not able to establish when the air metering pin was last disturbed.

TNS 3/490





SUGGESTED MODIFICATION

TUFNOL/TEFLON BLOCK ATTACHED AS SHOWN BY CSK SCREWS OF CONVENIENT SIZE. DRILL AND TAP WHERE NECESSARY. SECURE WITH LOCTITE.

BLOCK DIMENSIONS:

* THICKNESS TO GIVE 1/16" CLEARANCE IN QUADRANT SLOT.
* DEPTH SUFFICENT TO ACCOMMODATE VERTICAL MOVEMENT OF FLAP LEVER.

NOTE

ENSURE THAT THE BOLTS AT EACH END OF THE FLAP QUADRANT SLOT ARE SECURE AND SLOT IS PARALLEL.

IS 29 D FLAP LEVER

TNS | 3/90

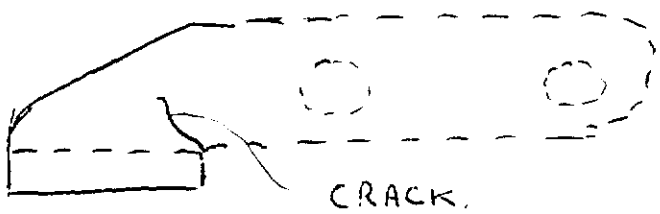
5,Grange Avenue,
Beeston,
Notts.
NG9 1GJ

Dear Dick,

Just a note of two problems I have encountered on our aircraft at Newark & Notts G.C.

1)Slingsby T61A Falke.

The Front Bracket on the tailplane showed fatigue cracks as shown in the sketch.These appear to emanate from the edge of the welded strenthening plate.The cracks are difficult to see due the area being a dirt trap.

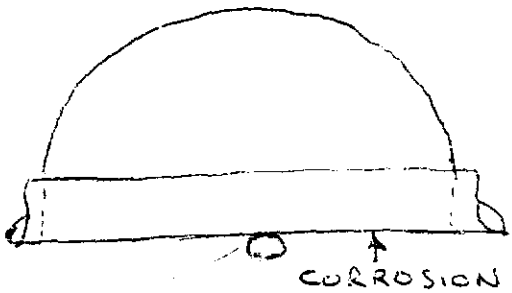


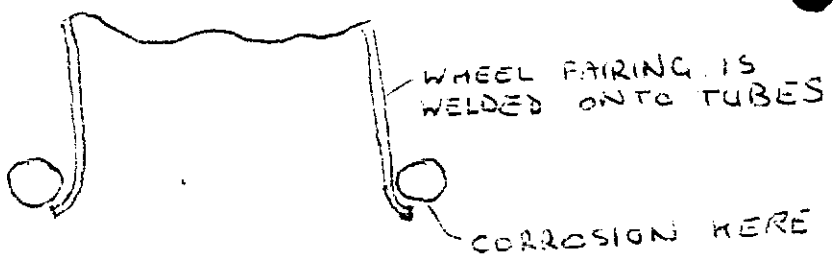
T 61A FALKE

2)K7.

The tubes around the wheelbox corroded through due to water being trapped between the wheel fairing and the tubes.Again difficult to see due to being covered with fabric.

K7





Regards,

Mike Davies

Mike Davies I/C679E

Civil Aviation Authority

Airworthiness Division

AIRWORTHINESS INFORMATION LEAFLET

Ref AD/IL/0088/1-5

Date 10th May 1982

Author's Initials JWS

This Leaflet will not necessarily be kept up to date by reissues.

SUBJECT TITLE PROCEDURE FOR UK REGISTRATION AND CERTIFICATION OF IMPORTED AIRCRAFT OF MTWA NOT EXCEEDING 2730 Kg.

PURPOSE GENERAL INFORMATION

REFERENCES THIS LEAFLET SUPERSEDES AD/IL/0082/1-5 DATED 12th MARCH 1981. THE ONLY CHANGES ARE THE CHARGES QUOTED IN PARAGRAPH 6.

The procedure outlined in this leaflet has been prepared as a general guide. It is assumed that the applicant will obtain all relevant data for the day-to-day operation of the aircraft. (See CAA Information Leaflet AD/IL/0076). Aircraft not eligible for the Issue of a Certificate of Airworthiness may be issued with a Permit to Fly.

1. NEW OR USED AIRCRAFT - TYPE AND MODEL ALREADY CERTIFICATED IN UK

1.1. The following documents have to be provided by the Applicant prior to Certification : -

(a) EXPORT CERTIFICATE OF AIRWORTHINESS or equivalent document.

NOTES (1) The Certificate should not be more than 60 days old.

(2) Some Authorities do not issue Export Certificates of Airworthiness. In these cases, a valid C of A may be accepted together with supporting evidence. (Note 3 FORM CA 3 refers)

(b) One copy of the FLIGHT MANUAL/OWNERS MANUAL/PILOTS OPERATING HANDBOOK as appropriate.

(c) WEIGHT AND CENTRE OF GRAVITY SCHEDULE or LOADING AND DISTRIBUTION SCHEDULE

NOTE : This Schedule may sometimes be included in the Flight Manual Document. It must include the list of basic equipment at time of weighing. (See BCAR Section A, Chapter A5-1, para 6).

(d) LOG BOOKS in respect of aircraft, engine(s) and V.P. propeller(s)

NOTES (1) The statement of compliance with modifications and inspections of a mandatory nature (e.g. Airworthiness Directives - See CAA Airworthiness Notice No. 36) may either be included in these log books or may be presented on separate certified lists.

(2) In addition, for helicopters, all retirement lifed components must be listed with hours/Cycles run history.

(e) A LIST OF SIGNIFICANT MODIFICATIONS, over and above the basic certificated design, which have been incorporated.

(f) LIST OF RADIO EQUIPMENT INSTALLED.
NOTE - With effect from 1st January 1981, VHF transmissions have to comply with CAA Airworthiness Notice No. 91.

2. NEW OR USED AIRCRAFT-TYPE AND/OR MODEL NOT ALREADY CERTIFICATED IN UK

(a) to (f) As in para 1.1, except that 5 copies of the FLIGHT MANUAL/ OWNERS MANUAL/PILOTS OPERATING HANDBOOK, as appropriate, are required.

(g) MAINTENANCE, OVERHAUL & REPAIR MANUALS FOR AIRCRAFT, ENGINES, SYSTEMS AND EQUIPMENTS, 2 copies for CAA

(h) PARTS CATALOGUE(S) If not included in (g) 1 copy for CAA

(j) SERVICE BULLETINS (including amendment service) 2 copies for CAA

The documents listed in 1 and 2 are the minimum necessary to enable certification procedures to be carried out. The applicant may be required to provide such other information as may be prescribed by the CAA for the purposes of certification (e.g. additional technical information, flight test reports).

NOTES : (1) For aircraft to be imported from the USA see also the latest issue of FAA Advisory Circular AC21-2.

(2) See also BCAR, Section A, Chapter A2-4 and CAA Airworthiness Notice No.15.

3. APPLICATIONS

The procedures of this para 3 are applicable to aircraft covered by paras. 1 and 2.

3.1. Registration

Application for the issue of a Certificate of Registration (C of R) should be made on Form CA 1 from Aircraft Registration Department, CAA Central Library, CAA House, 45-59 Kingsway, London WC2B 6TE (Telephone No. 01-379-7311). The completed Form should be returned to that address together with appropriate fee. (See para 6).

NOTE : Evidence of de-registration or non-registration in the country of export will be required before UK registration can be completed. This evidence is usually obtained from the Responsible Authority of the country concerned.

3.2. Certification

(a) Application for the issue of a UK Certificate of Airworthiness (C of A) should be made on Form CA 3 obtainable from Applications & Certification Section, Brabazon House, Redhill, Surrey, (Telephone Redhill 65966) The completed form should be returned to that address, together with the appropriate fee (See Para.6)

NOTES : (1) The FLIGHT MANUAL/PILOTS OPERATING HANDBOOK/OWNERS MANUAL, as appropriate, and EXPORT C OF A should preferably accompany the application form.

(2) Aircraft not eligible for the Issue of a Certificate of Airworthiness may be issued with a Permit to Fly which will restrict flight to within the UK.

(3) At least fourteen days should be allowed to process an application for an aircraft type and model already certificated in the UK. Other aircraft may require special investigation with a consequential increase in time required. It is important to check carefully all entries on the Applications Forms, as errors and omissions can lead to delay.

3.3. Radio Installation

Application for the issue of a Radio Installation Licence should be made to Home Office Radio Regulatory Department, Radio Regulatory Division Licensing Branch, Waterloo Bridge House, Waterloo Road, London SE1 8UA (Telephone 01-275-3024). The fee will be advised by the Home Office.

3.4 Ferry Journey Documentation

3.4.1 A restricted Certificate of Airworthiness (or Permit to Fly) to cover the ferry journey will be issued by the CAA at Redhill when it is satisfied that the UK Certificate of Registration and the Export Certificate of Airworthiness have been issued. In the absence of the actual C of A for Export details of the Serial Number and date of issue will normally be acceptable.

NOTES (1) The Certificate or Permit is only required for aircraft on the UK Register and is usually valid for the one journey only. It may also be endorsed to authorise flight testing to determine the airworthiness standard of aircraft prior to the ferry journey, and also in the UK prior to certification.

(2) Any fuel system installed for the purpose of ferrying has to be of an approved type.

3.4.2 Documents to be carried on board the aircraft on the ferrying flight are the UK Certificate or Permit, UK C of R, UK Radio Licence and Certificate of Approval of Aircraft Radio Station, Flight Manual/Pilot's Operating Handbook/Owner's Manual, as appropriate.

4. MAINTENANCE OF AIRCRAFT

4.1. Aircraft Eligible for C of A.

These aircraft are required to be maintained to the approved Maintenance Schedule CAA/LAMS/FW/1978 or CAA/LAMS/H/1978, as appropriate, or to any other Maintenance Schedule approved by the CAA for the aircraft. This maintenance scheme is associated with a three year validity period of the C of A.

NOTES (1) The C of A renewal procedure has to be carried out by an Organisation approved by the CAA for the purpose.

(2) For further information see CAA Information Leaflet AD/IL/0061.

4.2. Aircraft Eligible for Permit to Fly

These aircraft are required to be maintained in accordance with (a) Popular Flying Association (PFA) Scheme, where so agreed by the CAA, or (b) such other scheme as is agreed by the CAA. Both schemes are associated with a one year validity period of the Permit.

NOTE : PFA is a CAA Approved Organisation. Address - Shoreham Airport, Shoreham by Sea, Sussex BN4 5FF. Telephone Shoreham by Sea 61616.

5. SUMMARY OF CAA CERTIFICATION PROCEDURES

The following procedures, as appropriate, have to be completed before a Certificate of Airworthiness can be issued.

5.1 New or Used Aircraft - Type and/or Model Already Certificated in the UK

(a) Issue of Certificate of Registration

(b) Approval of Flight Manual/Pilots Operating Handbook/Owners Manual, as appropriate.

(c) Clearance and Issue of Noise Certificate which is required for each aircraft issued with a C of A after 1st January 1980.

(d) Preparation of Standard type log books for Airframe, Engine and V P propeller, (CAP 398, CAP 399 and CAP 340, respectively, published by the CAA)

(e) Aircraft survey and clearance of maintenance check, as required by the CAA.

NOTE : The aircraft survey may have to be carried out in several stages, dependent on the condition and past history of the aircraft.

(f) CAA survey of Radio Installation and issue of Certificate of Approval of Radio Installation.

(g) CAA Check of aircraft technical documentation

(h) CAA flight testing, as prescibed by the CAA

NOTE : Flight testing is usually only required by the CAA for a new type or model of aircraft.

5.2 New or Used Aircraft - Type and/or Model Not Already Certificated in the UK

(a) to (h) As in para 5.1

(j) Clearance of Manuals as required in para 2.1 (g)

NOTES (1) In addition to the procedures of (a) to (j) investigation of the aircraft design may be necessary - see CAA Airworthiness Notice No.15.

(2) For Charges for investigation of Prototype aircraft see para. 6.

6. CAA CHARGES (Other than Gliders and Balloons)

6.1 Registration £12.00, or for personalised registration £112.00

6.2 Certificate of Airworthiness

6.2. 1 Helicopters

(a) Prototype - investigation charge £92 per 500 kg of MTWA, or cost of investigation, whichever is the greater plus £92 for 500 kg for each year of validity of the C of A.

(b) Series - investigation charge £92 per 500 kg of MTWA, plus £26, per 500 kg for each year of validity of the C of A.

6.2. 2 Aeroplanes

(a) Prototype - investigation charge £39 per 500 kg of MTWA, or cost of investigation, whichever is the greater, plus £26 for each year of validity of the C of A.

(b) Series - investigation charge £39 per 500 kg of MTWA, plus £26 for each year of validity of the C of A.

6.3. Permit to Fly

(a) Aircraft not exceeding 500 kg MTWA a charge of £90

(b) Aircraft exceeding 500 kg, but not exceeding 2730 kg MTWA, a charge of £170.

(c) Renewal of Permit to Fly is one half ($\frac{1}{2}$) Rate as shown above.

Note : Where the aircraft is to be maintained in accordance with the PFA scheme (see 5.2) reference should be made to the Association for details of their charges.

6.4. General

6.4. 1 MTWA - MAXIMUM TOTAL WEIGHT AUTHORISED

6.4. 2 CAA charges are expressed in pounds sterling

6.4. 3 CAA charges may be amended from time to time, and it is therefore advisable to refer to the CAA Official Record, Series 3, or to the Summary set out in CAA Airworthiness Notice No. 25 before sending fees with the application.

BRITISH GLIDING ASSOCIATION (TUGS / S.L.M.G.s.)

C.A.A. LIGHT AIRCRAFT MAINTENANCE SCHEDULE / WORKSHEET

A/C Type ..... Club/Location .....Registration .....

Date .....

LAMS Fixed Wing – Section 7

50 HOUR, 150 HOUR AND ANNUAL CHECKS

	Item	Detail*	50	150	Annual
Structures	1	Inspect – external covering of fuselage, tail booms, mainplanes, nacelles, empennage, control surfaces, flaps and other high lift devices. Inspect – normal and emergency windows and doors, and Check – satisfactory operation of latching and locking. Check – protective treatments; drain holes free from obstruction; access panels secure.	X	X	X
	2	Remove sufficient detachable panels and covers to Inspect – internal structure of fuselage, floors, bulkheads, tail booms, main planes, nacelles, empennage, control surfaces, flaps and other high lift devices, structural attachment joint assemblies; struts; bracing wires and their attachments; internal protective treatments; surface de-icer systems. Check – condition of static discharge wicks.		X	X
	3	Check – function of emergency exits by internal and external release methods. Inspect – condition of lightning strike bonding.			X
Landing Gear	4	Inspect – landing gear assemblies; shock-absorber struts or units for leaks and correct extension; brake system; wheels and tyres. Check – tyre pressures; hydraulic brake system fluid level(s).	X	X	X
	5	Prior to raising aircraft carry out Item 4. With aircraft supported and weight off the wheels, Inspect – structural members and attachment fittings, including pivot points; shock absorbing devices; bungee rubbers; torque links; main, nose/tail wheels, including bearings, skids; brake linings;		X	X

	Item	Detail*	50	150	Annual
Landing Gear	5	drums/discs, anti-skid devices, hoses and lines; hydraulic and electric actuators and jacks. Check – main and parking brake systems for correct operation. Carry out normal and emergency retraction and extension checks, including operation of locking devices, doors and operating linkage, indicators and warning devices. Check – hydraulic/pneumatic operating pressures.		X	X
Flying Controls	6	Check – flying controls for full and free movement in the correct sense; position indicators agree with surface movement.	X	X	X
	7	Inspect – hinges; brackets; push-pull rods; bellcranks; control horns; balance weights; cables; pulleys; chains; tubes; guides and fairleads; rollers; tracks and rails; screw jacks/rams, including auxiliary gearboxes or other power-operated systems. Check – turnbuckles/locking devices in safety. Inspect – flap asymmetric protection mechanisms.		X	X
	8	Check – all control cables for correct tension; control neutrals and travels. Record results.			X
Liquid, Air, Gas Systems	9	Inspect – hydraulic, pneumatic, vacuum and other fluid systems, as visible, for leaks and damage. Check – fluid levels in reservoirs; accumulator pressures; pitot/static vents clear; drains free from obstruction and pitot head correctly aligned.	X	X	X
	10	Check – tanks; powerpacks; valves; pipelines; hoses; actuators; filters; venturis. Check – systems for leaks with system pressures during engine ground run.		X	X
	11	Check – pitot/static systems for leaks. Continued on page 7/6			X

Inspection Required shown X

	Item	Detail*	50	150	Annual
Equipment and Environmental	12	Check – correct stowage of equipment, and validity of date on emergency equipment; seats, belts/harnesses for satisfactory condition, locking and release; fire extinguishers for leakage or discharge.	X	X	X
	13	(a) Check – cabin air system for correct operation. Inspect – heater for signs of overheating or contamination. Check – air conditioner for leaks and correct oil level. Inspect – ventilator blower; outflow valves; pressurization controller; bleed system; shut-off valves.		X	X
		(b) Carry out ground function pressurization check.			X
	14	Check – fire extinguisher(s) contents by pressure/weight.			X
Instrument Systems	15	Inspect – instruments for damage, and for legibility of markings and associated placards. Check – readings are consistent with ambient conditions; operation, as far as possible, on engine ground run; stall warning device operation.	X	X	X
	16	Inspect – instruments; panels; mounts; pipes; hoses; electrical wiring; gyro filters; flux detectors; instrument transmitters.		X	X
	17	Ensure – last compass swing will remain valid until next check (see Section 3, para 2.2(d)); instrument calibration periods will remain valid until next check (see Section 3, para 2.2(c)).	X	X	X
Auto-pilot & Flight Director	18	Inspect – displays; instruments; controllers. Check – operation, as far as possible, on engine ground run, and perform manual override and disengagement checks.	X	X	X
	19	Inspect – computers; amplifiers; power supplies; servo motors; connections to flying control systems; automatic trim systems; yaw damoers; manometric systems interconnections.		X	X

	Item	Detail*	50	150	Annual
Electrical Systems	20	Maintain battery. Inspect – battery stowage/compartment and vents/drains. Check – operation of all electrical circuits.	X	X	X
	21	Inspect – components; wiring; terminals; connectors. Check – correct type and rating of fuses and circuit breakers; correct spare fuses carried; flap asymmetric protection and all travel limit microswitches; lamps and lighting; fire circuits; brushes in starters and generators; drive belt tension and condition. Ensure voltage regulator load sharing is correct.		X	X
Radio	22	Inspect – aerials; insulators; controllers; instruments and displays; microphones and headsets. Check – placards and markings legible. Carry out VHF ground function test.	X	X	X
	23(a)	HF Communication – Test the function of the system.			X
	23(b)	ADF – Carry out ground function test using station(s) of known bearing to establish bearing accuracy. Check – audio on all bands.			X
	23(c)	ILS Localiser and Glide Slope – Carry out a check with a Field Test Set, including flag warnings of single tone failure. Check – centre-line accuracies, sense and course widths. Check – audio.			X
	23(d)	VOR – Carry out a check with a Field Test Set, including flag warnings, omni-radial resolving and radio-magnetic indicators accuracy at 90° intervals. Check – sense and course width. Continued on page 7/8			X

Inspection Required shown X

	Item	Detail*	50	150	Annual
Radio	23(e)	Marker – Carry out a check with a Field Test Set, including 3-tone operational check. Check – High/Low sensitivity.			X
	23(f)	DME – Carry out a check with a Field Test Set, including range accuracy.			X
	23(g)	ATC Transponder – Carry out a check with a Field Test Set. Check – frequency tolerance and side-lobe suppression. Check – Mode 'C'.			X
	23(h)	Airborne Search/Weather Radar – Test the function of all modes.			X
	23(i)	Area Navigation – Establish accuracy of waypoint distance and bearing.			X
	23(j)	Audio – Check 'Emergency' operation.			X
	24	Verify by reference to Section 8 that all required maintenance activities have been complied with (see also Section 3, para 2.2(f)).			X
Lub	25	Inspect – cables and terminals; cooling systems; moisture trap areas.	X	X	X
	26	Lubricate aircraft in accordance with manufacturer's recommendations.		X	X
Propeller	27	Inspect – blades for damage. Check – accumulator/dome pressure.	X	X	X
	28	Inspect – spinner; backplate; constant speed unit (governor); accumulators; de-icing boots; slip rings/brushes; fluid systems; control systems. Check – pitch change mechanism for backlash; propeller hub for condition. Lubricate and check for oil leaks.	X	X	X
				X	X

	Item	Detail*	50	150	Annual
Engine Installation	29	Engine controls – Check for full and free movement of throttle, mixture and propeller controls over correct range.	X	X	X
	30	Check for evidence of leaks, overheating or other unsatisfactory operation.	X	X	X
	31	Inspect – crankcase; accessory housings; cylinder assemblies; valve operating mechanism; accessory drive belts; accessories; engine shock mounts; mount frames; bulkheads, firewall and sealing; cooling baffles; cowlings; items in engine bay for mutual interference; compressor, turbine and gear housings; breathers and vents. Carry out compression check and record results and method used.		X	X
Air Induction	32	Inspect – air filter/intake for condition and cleanliness; induction system and first stage compressor/impeller for damage.	X	X	X
	33	Check – security of induction system components; correct operation of carburettor heat; alternative air bypass doors; flame traps; control systems; drains.		X	X
Fuel	34	Inspect – filters for cleanliness. Drain samples from all drain points and check for water, foreign matter and correct colour. Check – tank vents unobstructed.	X	X	X
	35	Inspect – tanks; cocks or valves; pumps; pipelines; hoses; carburettors; injector systems; throttle and fuel selector controls; turbine fuel control units; nozzles.		X	X

Continued on page 7/10

SECTION 4 – LOG BOOK ENTRIES AND CERTIFICATIONS

1 **Log Book Entries.** On completion of any Check, except Check A, required by this Schedule, an entry shall be made in the appropriate log book. The following is an example of an entry acceptable to the CAA:

Company Name _____ Approval No. (if applic.) _____

50 hr/150 hr/Annual Check has been completed to

my satisfaction at _____ total airframe hours

Maintenance Schedule Ref _____

Signature _____ Date _____ Authority _____

Airframe _____

Engine/Propeller _____

Radio _____

2 **Certificates of Release to Service.** Whenever work has been completed involving overhaul, repair, replacement, modification , scheduled or mandatory inspection, a Certificate of Release to Service shall be issued in accordance with BCAR, Section A, Chapter A4–3, but see Notes below.

NOTES: (1) A Certificate of Release to Service is not required in the case of an aircraft certificated in the Private Category where the pilot/owner carried out the 50 hour check in accordance with Section 6, para 1.4.2 of this Schedule.

(2) A Certificate of Release to Service in Category 'R' (Radio) is only required at each Annual Check and when completing the out of phase Radio Appendix items of Section 8 of this Schedule.

(3) A Certificate of Release to Service is not required in Category 'R' (Radio) at any time where the Radio installation comprises VHF Communication equipment only.

(4) A Certificate of Release to Service is not required for the completion of a Check 'A' inspection (see Section 6, para 1.3).

SECTION 5 – THE MAINTENANCE CHECK CYCLE

Transport and Aerial Work Category

Check A	–	Prior to first flight of the day.
50 Hour Check	–	Not exceeding 50 flying hours, or 62 days, whichever is the sooner.
150 Hour Check	–	Not exceeding 150 flying hours.
Annual Check	–	Not exceeding 12 months, but see Note (2).

Annual Checks shall be completed only by Organisations approved by the CAA in accordance with BCAR, Section A, Chapter A8–15. See also Foreword para 8.

Private Category

Check A	–	Prior to first flight of the day.
50 Hour Check	–	Not exceeding 50 flying hours.
150 Hour Check	–	Not exceeding 150 flying hours.
Annual Check	–	Not exceeding 12 months, but see Note (2).

The Annual Check which coincides with the Certificate of Airworthiness renewal shall be completed only by Organisations approved by the CAA in accordance with BCAR, Section A, Chapter A8–15. See also Foreword para 8.

NOTES: (1) Provided that airworthiness is not impaired, it is permitted to extend the period prior to any complete maintenance check, with the exception of the Annual Check, by a maximum of 10%. Extensions are not required to be deducted from the next scheduled period. An extension may only be authorized by persons acceptable as signatories for the purpose. The extension shall be recorded in the appropriate log book.

(2) The Annual Check may be anticipated by a maximum period of 62 days without loss of the ... of the maintenance pattern. Thus, for example, where the full 62 days is invoked, the following Annual Check would become due ... ths after the completion of the Annual Check which was anticipated. The period by which the Annual Check was anticipated ... te of the next Annual Check shall be recorded in the appropriate log book.

(3) For extension periods for radio maintenance activities, refer to Section 8.

(4) See also Section 2 paras 4, 5 and 6.