

BRITISH GLIDING ASSOCIATION

TECHNICAL COMMITTEE

TNS 7/8/80

1. AIRWORTHINESS "AGGRO"

Please add to the 1980 Green Pages.

- 1.1. To all owners of LS.1C (LS.1, 2, 3 Series Gliders).
Trim Spring Failure. A serious accident has resulted from one of the two elevator trim springs becoming detached from the Pilot's Trim Lever. A change of stick force from $1\frac{1}{2}$ / 2 lbs. to an out-of-trim force of (say) 6 lbs. will immediately arise. Inspection of the spring attachments to the lever will require a hole to be cut in the seat pan. (Could apply to similar systems in other types)
(Reported by Keith Mitchell, Southdown G.C. after painstaking reconstruction of wreckage!) - mailed to owners.
- 1.2. To all owners of YS 53 Series Gliders (including T.53).
Air Brakes Locked Out. The eye-end attachment rivets in the vertical control rod to the air-brakes adjacent to frame 6 can foul against the guide, and lock the air-brakes out. Reported by Mike Stanton - Swanton Morley.
- 1.3. T.65A and T.65D "Vegas" T.I. No. 92 (Mailed by Slingsby Engineering) requires the restriction pending modifications to eliminate aileron vibration. (Vne/rough air speed limitation 100 k.)
- 1.4. Astir - Tailplane Front Attachment Ball Cracked. Three out of eighteen samples inspected by Dutch Airworthiness Authority were found to be cracked at first thread under the nut, (tenth from end of bolt). May require X 50/100 magnifier to detect this damage (sketch attached).
- 1.5. Olympia 463 - Split-pin in Elevator Outer Pivot. Loose split-pin became detached, and likewise elevator! Castellated nut should be tightened and secured by good fitting split-pin or other means of Class 1 locking. Reported by J.B. Pailing).
- 1.6. K.7 Rear Fuselage Elevator Push Rods. After a "heavy" landing, which damaged the fuselage, the elevator push rod installation was found to be buckling. The two centre swinging arms were found to be pivoted from the rear of the cross tubes, but the system was improved when they were re-located on the front side (Reported by J.B. Pailing).
- 1.7. Speed Astir II and IIB. Canopy Locks. TM 320-2 introduces improved springs, to avoid "self-acting opening of the canopy during flight". Serial No's 4001-4107 are affected. Compliance by 15/7/80.

- 1.8. Club Astir II and Standard Astir II. Canopy Locks. (Serial No's 5001-5061). TM 306-14 requires "exchange of springs in canopy fasteners". Compliance by 15/7/80.
- 1.9. T.21 Ottfur Hook - Side Plates Cracked. Hook about to part company with glider. (Reported by Borders G.C.).
- 1.10. K8. Series - Canopy Locks. Schleicher Tech Note 21. (attached) requires inspection as indicated thereon.

2. GENERAL MATTERS

- 2.1. Blanik Tow-Release Springs. (Belly Hooks) An external spring to assist the return of the Bowden Cable, may be attached to the structure of the wheel cover. No significant increase in operating load should originate from this product improvement modification approved as minor mod BGA/Blanik/1/80. (Suggested by J.B. Pailing).
- 2.2. Aircraft Paint Finishes. Fabric and metal. M.O.D. (RAF) recommend cellulose spec BSX29 and BSX26 for fabric, and Acrylic for metal. (less "aggro" than polyurethane!)

2.3. Change of Ownership/Change of Address

Emergency Airworthiness Directives have to be mailed to owners either by the B.G.A. or by the Vendor or by the Manufacturer. Therefore it is important to notify such changes, as appropriate. (Tugs/Motor Gliders/Gliders).

2.4. Manufacturer's Service Letters, Bulletins, Technical Instructions, Airworthiness Directives etc.

(a) Such documents are drafted by the originators in pseudo-legal-airworthiness terms, in order to remedy some specified deficiency for which product liability and/or some degree of warranty, may be implied or denied as appropriate. In some cases where a definite date is quoted by which compliance is expected to be achieved, product liability would terminate on that date.

(b) Therefore the B.G.A. is not empowered to vary the text of such airworthiness documentation.

(c) However where an owner/operator takes the initiative to seek either a short or long term solution, by alternative means, achieving an equivalent standard of airworthiness, he is always free to seek the advice of the Chief Technical Officer.

(d) Sources of Information. The Manufacturer or his Agent, should supply his airworthiness information directly to the registered owner of the glider, as well as to the Airworthiness Authority (CAA/BGA). Foreign Government Airworthiness Directives are sent to all Contracting States to I.C.A.O. The B.G.A. receives such Directives from C.A.A. The B.G.A. has also developed a Worldwide Airworthiness intelligence network with other gliding organisations.

2.5. I.S. 28/28 B2. Service Bulletin IS28-28B2/ERS "Modification of minimum pilot weight in single control" is available from Slingsby Engineering, Kirkbymoorside, York YO6 6EZ.

2.6. Glider C. of A. Issues/Renewals etc. - PLEASE

- (a) Enclose C. of A. Document for Renewal.
- (b) Include Hours/Launches, for the record.
- (c) Enclose Export C. of A. - new applications.
- (d) Quote Correct B.G.A. Number.
- (e) Quote Correct Works Number, when applying for B.G.A. Number.

Note. C.s of A. are normally returned to the B.G.A. Inspector concerned, unless B.G.A. are instructed otherwise by the applicant.

Many thanks for a fumble-free operation!

3. TUGS AND MOTOR GLIDERS

- 3.1. Auster Series - Corrosion of Alloy Brake back-plates. Resulting failure caused aircraft to stand on its nose! (Extract from G.A.S.I.)
- 3.2. Spark Plug Fouling - 15% loss of power. Investigation into fatal helicopter accident showed that 15% power loss was attributable to fouled plugs (100LL Avgas etc).
- 3.3. Colour Coding of Fuelling Installations. Where confusion may arise from the use/mis-use of several sources and grades of fuel on the same site, the advice given on attached G.A.S.I. extract, should be followed. (Where fuel is sold, various legislation could apply, including Article 76A of the Air Navigation Order, and the Weights and Measures Act.
- 3.4. Wood and Fabric Airframes - Self destruction by exposure to DAMP. The attached extract from G.A.S.I. is self condemning.
- 3.5. Introduction 25 KHZ VHF Communication Eqmnt. A provisional list of approved equipments is attached herewith. Queries should be referred to C.A.A. (Airworthiness Division), Brabazon House, Redhill, Surrey RH1 1SQ. (Redhill 65966)
- 3.6. Upper Torso Restraint.
 - (a) A few aircraft types may be eligible for legal exemption from the A.N.O. requirement to fit upper-body restraint, because of technical difficulties in meeting full compliance with B.C.A.R.'s Section K.
 - (b) However in a recent tug accident, the pilot was severely injured and the passenger killed. If upper-body restraint had been installed, there is little doubt these personal injuries would have been minimised.

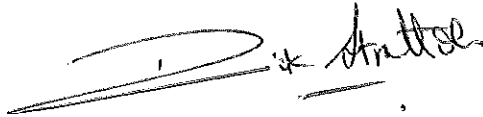
(c) Therefore there is a good case to argue for a degree of safely improvised upper-body restraint, even if full compliance cannot be achieved.

(d) Owners/Operators of such tugs should take steps to raise C.A.A. Minor Modifications, to provide an acceptable degree of protection for their Tug Pilots.

(e) When such installations have been installed it must be demonstrated that every size and shape of Tug Pilot still has easy access to all essential controls including the tow release control.

3.7. Rolls Royce Continental Engines

R.R. SB T 408 (Slick Magneto Bulletin 1-80) has been made Mandatory by C.A.A.

A handwritten signature in black ink, appearing to read "R.B. Stratton", written over a horizontal line.

R.B. STRATTON
CHIEF TECHNICAL OFFICER.

Subject: Examination of the canopy lock

Effectivity: Glider K 8 , K 8 B , K 8 C

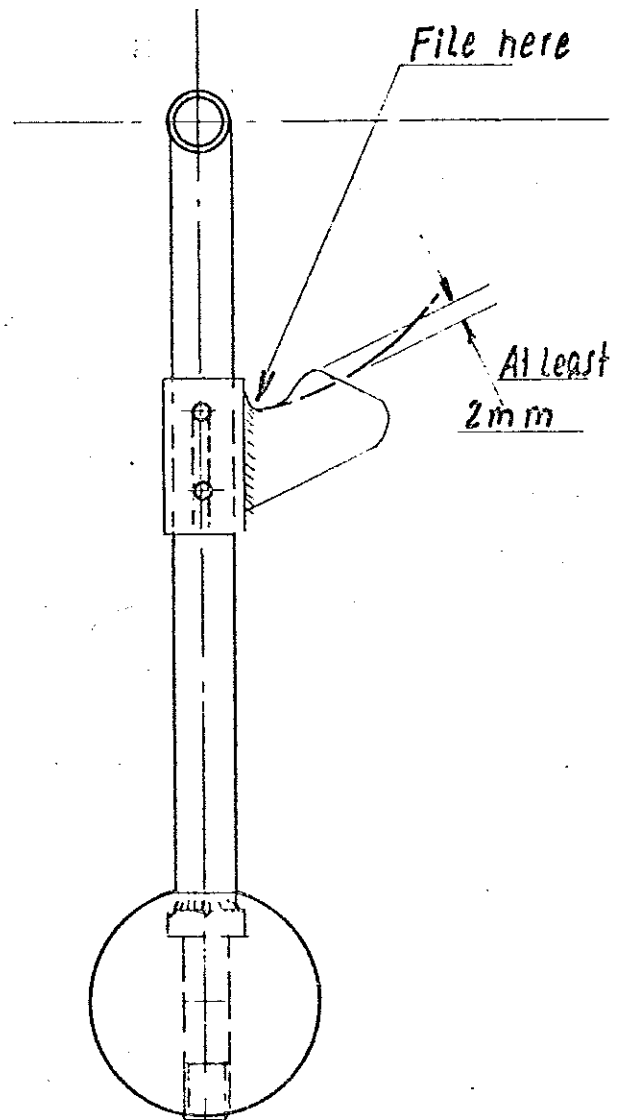
Accomplishment: To be made until 01.08.1980.

Instruction: The canopy lock has to be examined if the cam is at least 2 mm high.
 If not, take a file to make it deeper.
 Note the examination in the log book.

Material: --

Weight and

Balance: --



Poppenhausen, 12.05.1980

ALEXANDER SCHLEICHER
 Segelflugzeugbau
Rudolf Hauser
 (Rudolf Hauser)

P.T.O.

Airworthiness Directive

80-158 Schleicher

Date of issue:

June 16, 1980

Affected sailplane:

German Type Certificate No.216.
K8, K8B and K8C, all serial numbers.

Subject:

Cockpit hood lock

Reason:

It is possible, that the cam of the cockpit hood lock lever will be too flat topped owing to permanente use in course of times.

Action and compliance:

Proceed in accordance with Technical Note until August 1, 1980, unless already accomplished.

Technical publication of the manufacturer:

Technical Note No. 21 of May 12, 1980, which becomes herewith part of this AD and may be obtained from Messrs. Alexander Schleicher, Segelflugzeugbau, D-6416 Poppenhausen, Germany (WEST).

Accomplishment and log book entry:

Action to be accomplished by a skilled person and to be entered in the sailplane's log.

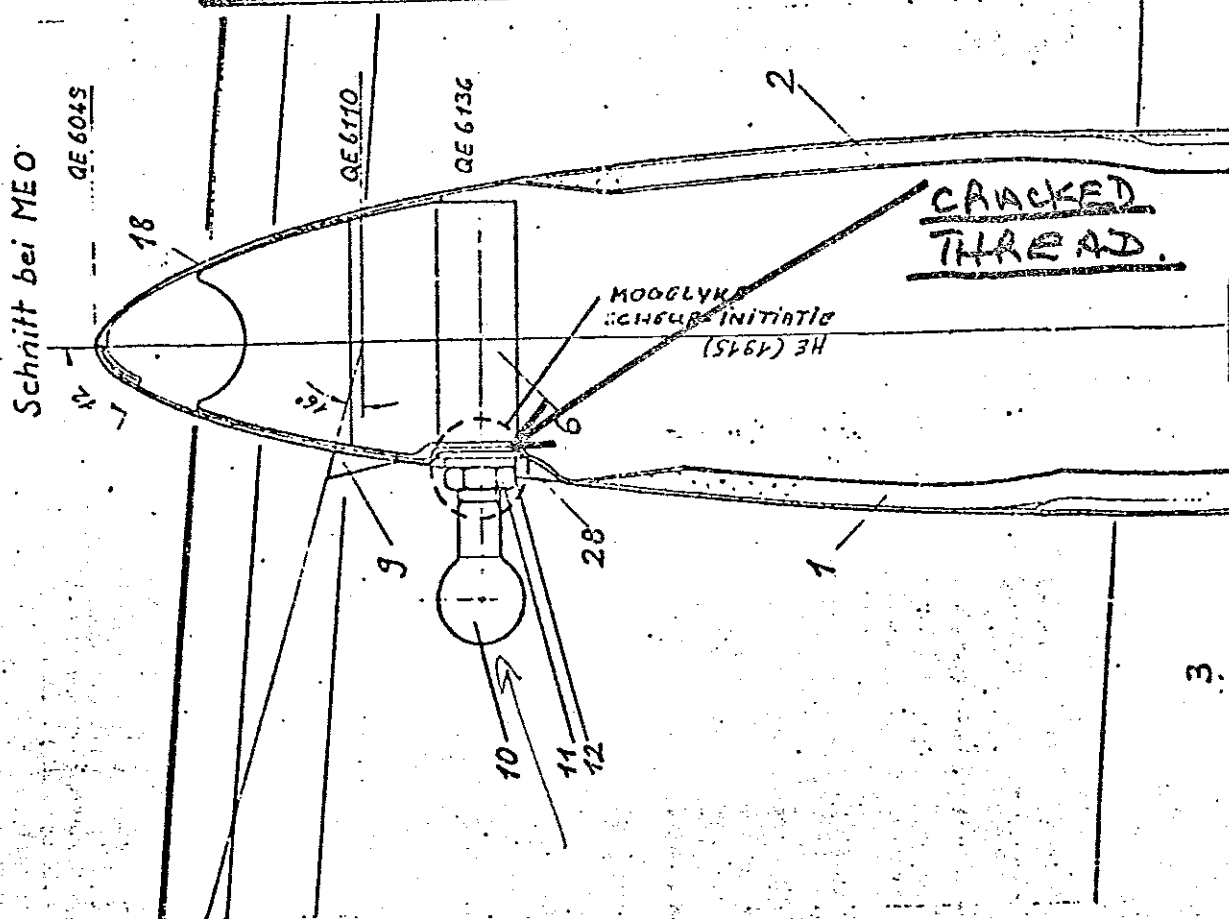


FIG. 1

3.

INTRODUCTION OF 720 CHANNEL RADIO

CAA Comment:

The introduction of 720 channel radio communications equipment with 25KHz spacing has been gradually phased in during the last few years. AIC Nos 70/1977 and 18/1979 provide a full explanation.

From 1 January 1981 all transmitting equipment installed in UK registered aircraft will have to operate at a frequency that does not vary more than plus or minus 0.003 per cent from the assigned frequency. Many general aviation aircraft are still using 360 channel equipment; some of which may be unable to meet the above accuracy. A 360 channel set will be unable to use any newly assigned 25KHz channels.

Airworthiness Information Leaflet AD/IL/0078/1-3 will shortly be available from Airworthiness Area Offices. The leaflet includes a list of the frequency tolerance capabilities of most current radio equipment.

The allocation of new channels has started and NOTAM A314 states that from 1 July 1980 the Biggin Hill ATIS will be on 118.425 MHz. It is understood that Fair Oaks has been allocated 123.425 from August 1980. This will remove the problem of interference from the Thruxton frequency. GASIL 1/78 page 4 described a case at Fair Oaks of the wrong aerodrome replying with landing instructions.

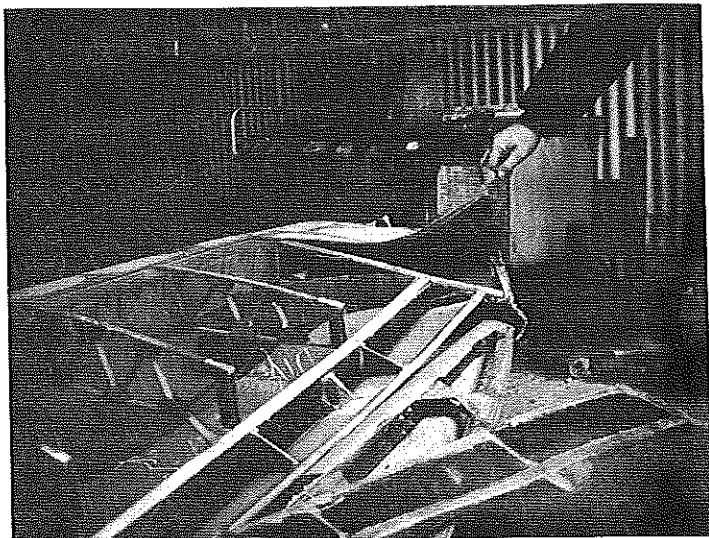
(Ref also attached CAA Leaflet).

13. STRUCTURAL DETERIORATION OF WOOD AND FABRIC AEROPLANES

Aircraft : Piel CP301A Emeraude
Date : January 1980

SELF INFLECTED DESTRUCTION!

The aircraft was stored in the open for 12 months, during which it was flown for about 30 hours. Eventually the owner decided to have it re-covered. It was discovered that the wing, fuselage, and tailplane were suffering from total loss of structural integrity due to glue failure. For example the rear spar spliced joint had parted adjacent to the aileron and the plywood facing on the main spar had parted over most of the length of the spar together with separation of the spar from the ribs. Further, the wood had lost its resilience and was very brittle. The glue failure was caused by water penetration. The aircraft had spent the 1979/80 winter parked outside, but it is not known how much it had been parked outside previously.



Ribs separated from both front and rear spars, with rear spar disintegration and wing tip ply separating

It is strongly recommended that wood and fabric aircraft should not be kept outside. Any aircraft which are kept outside should be carefully examined for any sign of structural deterioration or water penetration, eg bulges indicating delamination, soft or wet patches on the underside of wings, etc. Inspection panels, etc, should be removed to facilitate the checks.

DID YOU EVER THINK ABOUT THIS? CORROSION.

Flashlight batteries generate electricity by the reaction of two materials - generally zinc and Graphite. The same "battery" can be created on your aircraft if you write on aluminium with your Graphite pencil. In one case we heard of an inspector drew a pencil line around a crack in an aluminium wing skin. Two months later the crack wasn't the problem because the entire disc fell out!! The pencil mark acted as a perfect can opener.

From Air Asia Today - Courtesy of International Federation of Airworthiness Newsletter, Editor, D. K. Smith.

TNS/7/80

INTRODUCTION OF 25 KILOHERTZ SPACING TO AERONAUTICAL VHF COMMUNICATION BAND

PURPOSE

This leaflet gives details of the CAA proposals in relation to the introduction of 25 KHz channel spacing in the Aeronautical Communications Band 118 MHz to 136 MHz.

REFERENCES

ICAO Annex 10 Vol. 1 Para 4.7.1.1. Aeronautical Information Circulars 135/1975 70/1977 and 18/1979. CAP 208 Vol. 1.

INTRODUCTION

Information Circular 135/1975 stated the intentions within the European Region of ICAO to implement frequency assignments within the band 118 - 136 MHz on a 25 KHz channel spacing basis in order to double the number of available channels. Owners and operators needing such frequencies should ensure that the correct equipment is installed in their aircraft. The ICAO Standard published in 1974 established performance criteria for those equipments operating where 25 KHz spacing has been implemented and in 1974 the CAA approval requirements for both airborne transmitters and receivers were appropriately amended. The Minimum Performance Specifications are in CAP 208 Vol. 1.

The ICAO Standard also established the criteria for those equipments with a greater than 25 KHz channel spacing capability which might continue to be operated where 25 KHz spacing is introduced. In the case of an airborne station the standard requires that the radio frequency of transmission shall not vary more than plus or minus 0.003 per cent from the assigned frequency (approximately 4 KHz) and the CAA intends this to apply from January 1st 1981. CAA Aeronautical Information Circular 70/1977 refers.

Aeronautical Information Circular 18/1979 warned of the impending introduction of 25 KHz spaced channels within the UK and the first of such frequencies to be assigned for civil aviation use commences operation early in August 1980.

APPLICABILITY

- a) Any new installation after January 1 1981 should be of a type where the manufacturers specification declares compliance with the new Standard in respect of transmitter frequency tolerance.
- b) In respect of existing installations the Authority is monitoring aircraft transmissions to determine the extent to which the 0.003 per cent tolerance is being exceeded. This, together with operating experience, will permit a review in January 1983.
- c) The Authority does not intend to withdraw the Approval of any radio equipment currently installed in UK registered aircraft until at least the 1983 review is completed.

KING RADIO CORPORATION

<u>Type Ref</u>	<u>Tx Freq Tolerance</u>
KTR-905	± .003%
KTR-900A	± .003%
KTR-9100	± .001%
KTR-9100A	± .0015%
KX-170BE	± .003%
KX-170B	± .003%
KX-175BE	± .003%
KX-175B	± .003%
KY-195B	± .003%
KY-196	± .0015%
KY-197	± .0015%
KY-92	± .0015%
KX-145	± .003%

The frequency tolerance of all earlier transmitters is ± .005% or greater.

NARCO

<u>Type Ref</u>	<u>Tx Freq Tolerance</u>
COM-10	± .003%
COM-11	± .003%
COM-10A	.003%)
COM-11A	.003%)
COM-11A-H	.003%)
COM-110	.003%)
COM-111	.003%)
COM-111H	.003%)
COM-120	.003%
COM-120/20	.003%
COM-111B	.003%
COM-11B	.003%

or can be retuned (SB 17)

The frequency tolerance of all earlier transmitters is ± .005% or greater.

ROCKWELL-COLLINS

<u>Type Ref</u>	<u>Tx Freq Tolerance</u>
VHF-20	± .0015%
VHF-20A	.0015%
VHF-20B	.0015%
VHF-250	.003%
VHF-251	.003%
VHF-250E	.003%
VHF-251E	.003%
618M-2	.003%
618M-3	.003%
618M-3A	.003%

The frequency tolerance of all earlier transmitters is ± .005% or greater.

BENDIX AVIONICS

<u>Type Ref</u>	<u>Tx Freq Tolerance</u>	
RTA-43A	\pm .003%	
RT-241B	.003%	
CN-2011A	.003%	
CN-2012A	.003%	
CN-2013A	.003%	
PA-2018A	.003%	
RTA-41()	.003%	See SB M-853
RTA-42A	.003%	See SBs M-855, M-856, M-859
RT-241A	.003%	See SBs 241-010 and 241-019

The frequency tolerance of all earlier transmitters is \pm .005% or greater.

BECKER

<u>Type Ref</u>	<u>Tx Freq Tolerance</u>	
AR7	\pm .003%	
AR2009	.003%	The frequency tolerance of all earlier transmitters is \pm .005% or greater.
AR2010	.003%	
AR2011	.003%	

RCA

The frequency tolerance of all transmitters is \pm .003% or better.

WULFSBERG

"

T A McMULLIN

"

AVIONIC SYSTEMS HEATHROW

"

EDO-AIRE

"

B.C.A. Note. Latest lists of Approved Equipment may be consulted at local C.A.A. OFFICES.

THIS LIST MAY NOT BE FINAL.

R.L. CO/SCA

EXTRACT GAS 6/80

18. NOTIFICATION OF CHANGE OF OWNERS ADDRESS

(- AIRCRAFT/ GLIDERS/ ^{MOTOR} GLIDERS)

Airworthiness Directives are sent to the address of the aircraft's registered owner. Following distribution of a far-reaching AD (such as the Piper lift strut one) the CAA receives telephone calls of the "I've heard that why haven't I received" type. Almost invariably the owner(s) have failed to notify the CAA of a change of address. This is essential for dissemination of safety information, and is required under ANO Art 3.

7. COLOUR CODING OF AIRCRAFT FUEL POINTS

Aircraft : Piper PA31 Navajo
Date : March 1980

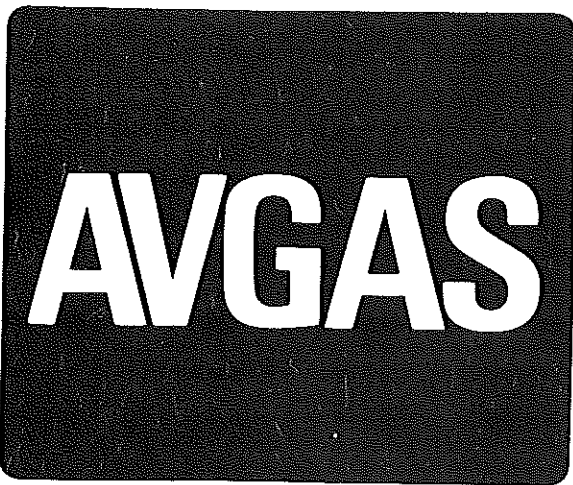
ARTICLE 76A OF THE ANO APPLIES!!

The aircraft's outer tanks were being refuelled at Shannon. During this operation it was realised that Jet A1 was being put into the tanks. These were immediately drained, the fuel selector having been selected to "inner tanks". An extensive engine run was made, and the next flight was normal.

CAA Comment:

There have recently been several similar cases (see GASIL 3/80 item 6, 5/79 item 18, 2/79 item 8). The only really foolproof solution to this problem is to make the jet fuel hoses physically incompatible with AVGAS aircraft and vice-versa. The RAF are doing this but it is not considered to be a practical proposition for UK general aviation aircraft.

Better colour coding of refuelling nozzles and aircraft filler points has been proposed both retrospectively and for the future. Since all aircraft using AVGAS have gravity filler points it is strongly recommended that all AVGAS nozzles should be colour coded RED, and that a red circle be positioned around the filler or a red rectangle adjacent to it on all aircraft having gravity filler points. The code for Jet A1 would be black. This solution would be relatively cheap and easy. In fact Shell, who hold a high proportion of the UK Avgas market, have free 2" x 3" self-adhesive labels available, as shown below. The AVGAS are red and the JET A1 black.



The aircraft in the incident above used these labels, but it is not known if these contributed to the error being discovered before flight.

6. BATTERY VENTILATION SYSTEMS

EXTRACTS G.A.S.I 7/80

(From FAA General Aviation Alerts - May 1980)

"The National Transportation Safety Board recently determined probable cause of a fatal accident to have been one or more explosions in the aircraft aft fuselage, resulting in fire and subsequent loss of control capability. The explosions were attributed to hydrogen gas in the tail cone igniting as it was drawn past operating electrical equipment.

During investigation, it was noted that vent hoses to one side of each battery case were not connected. Thus, it was possible for hydrogen gas to pass from the battery to the tail cone area.

In the battery charging process, the charging voltage, at constant current and normal charging rate, increases gradually to slightly above full charge voltage, then increases rapidly from this point unless controlled. This latter portion of the charging cycle is known as the gassing period and is characterized by, among other things, the rapid loss of electrolyte through evaporation and disassociation into free hydrogen and oxygen. Undesirable gassing is normally controlled by voltage regulating devices; however, if these devices malfunction, it is essential that ventilation systems function properly.

Maintenance and inspection personnel should be alert for signs of overcharging and give immediate attention to voltage regulator controls when overcharging is indicated. When batteries are installed or inspected, particular attention should be given to vent systems to be certain that they are in good condition, free of bends and kinks, and properly connected."

7. CONTROL COLUMN JAMMED

Aircraft : Gulfstream American AA-5A Cheetah
Date : May 1980

During a stalling exercise the right-hand control column was moved fully aft. On recovery it became jammed, and was released by the combined efforts of both pilots. It was found that the right-hand column retaining bolt was fouling the ammeter cable. All ammeter wiring and radio installation wiring was subsequently tie wrapped for further clearance, but with the column fully back the wiring is still close to it. A check was made on other aircraft in the school, which were found to be satisfactory.

CAA Comment:

This is a problem that has been highlighted in GASIL several times (eg 6/78 p.3). The control system should be checked for the possibility of fouling electrical wiring, etc, over the whole range of control movement.