B.G.A. TECHNICAL COMMITTEE

TECHNICAL NEWSHEET

TNS/5/6/87

PART 1 AIRWORTHINESS "AGGRO" (Please add to the 1987 Green Pages)

1.1. H.36 DIMONA (Serial No's 3501-3539 and 3601-36143). Shoulder Harness fittings, bonding to the Main Bulkhead. Service Bulletin 17 (20.1.87) requires inspection.

1.2. H.36 DIMONA Horizontal Tail Surface Mounting (Front). Service Bulletin 15/2 (20.1.87) requires inspection for POSSIBLE CRACKING OF THE ROD END BEARING.

1.3. PILATUS B.4. Loose Rivets in the Air Brake lever in the centre-section. (Sketch attached).

1.4. MINI NIMBUS Release Hook Thin metal protective shroud partially compressed on to the hook by contact with the seat pan. (Reported by Ian Barnes). May cause hook malfunction.

1.5. KESTRAL Wing leading edge skin delaminated by water ingress from the ballast tanks. Pressure applied to the leading edge forward of the aileron flap caused the skin to flex. (Reported by Don Austin to Slingsby Aircraft).

1.6. SKYLARK 4 Fin Failure The attached sketch and report explains the problem. In addition, Rudder Stops must be so adjusted (on all aircraft) that loads are not transferred to the fin post in Maximum Pedal deflections. (Reported to Slingsby Aircraft and the C.A.A. Technical instruction awaited from Slingsby Aircraft).

1.7. IS30/32 GLIDERS Failure of the Air Brake Control Handle A fracture occurred at the handle lower securing bolt, in the thinnest part of the tube. Repaired by cutting back to thicker section and inserting a light alloy adaptor. (Reported by Black Mountains G.C. Talgarth).

1.8. PA 18-150 Cub Severe damage to elevator cable by a seized pulley aft of the rear stick - 50 HRS since new! (Reported by Bristol & Glos G.C. Nympsfield).

1.9. DG 100/200/300/400 GRP "Junk" in the wings left in by the manufacturer may endanger your health! Attempts should be made to extract the bigger bits! (Reported by Bath & Wilts G.C. - Keevil).

1.10 GROB G.109B Tech/Memo 817-22 amends Flight and Maintenance Manuals (Copies from Agents).

1.11. GROB 109B MANDATORY ANTI-FLUTTER MODIFICATIONS Owners/Operators are reminded that C.A.A. require compliance with Tech/M 817-20 (removal of speed restrictions) by 31st December 1987.

1.12. DG 400 The following information has been received:- T/Note 826/18 Modification to engine Retration drive. T/Note 826/19 engine wiring - vibration protection. Service Inst. 1/10/86 starter motor spindle drive. Service Inst. 1/9/86 Engine wiring T/Note 826/17 Manual Revisions (Details from U.K. Agents).

1.13 TOST (TYPE) Winch Roller box assemblies A recent fatal accident was attributed to winch cable failure, caused by the close proximity of the side rollers demolishing the Talurit cable repair ferrules. The gap should be widened to give generous clearance (A.I.B. report to B.G.A.)

1.14 CONTROL STOPS - Correct Setting Control deflections should be limited by internal stops, such that loads are not reacted by the surfaces contacting the local structure (refer to maintenance manuals).

1.15 T.65 "VEGA" - water in the rudder Drain holes should be inserted to evacuate the lower part of the rudder. Entry probably occurs at the top fairing and water may also accumulate on the top rib. (Reported by Roger Targett).

1.16 KA 13 Elevator drive disconnected in "heavy" landing Subsequent investigation showed that the ball-race on the elevator did not engage fully with the slot in the drive rod. The position of the bracket on the forward fin post was adjusted to achieve full engagement. All Ka13s should be checked a.s.a.p. and particularly after repairs to the back end. (Reported by Wrekin G.C. RAFGSA).

PART 2 GENERAL MATTERS

2.1. Avgas supplies are now available from CYMA Petroleum 01-263-3141

2.2. LYCOMING CYLINDER FAILURES Two tugs have made forced landings in recent months due to cracking of the cylinders. Whereas the engines may have been "overhauled" or "zero-hour'd", the accumulated life of the cylinders cannot always be determined!

To extend the life of cylinders the following recommendations should be considered:

a) Limit the max cylinder Head Temperature (CCHT) by limiting the power, whenever it is safe to do so.

b) Descend with some power on not exceeding 1000 ft/min.

c) By descending at (say) 1700/1800 RPM (or less) heat is transferred from the sump to the carburrettor body, thereby enhancing the carb-ice protection. (Lycoming engines only).

ONLY NEW CYLINDERS, (as fitted to factory remanufactured engines) can have predictable lives, if operated in accordance with Lycomings recommendations.

2.3. Motor Gliders - C. of A. Renewals Please follow the guidelines in TNS/1/2/87 in good time, if you want to avoid delays.

2.4. Airworthiness Information enclosed herewith: GASIL 3/87 unlocked control turn buckle. GASIL 3/87 Fuel shortages. GASIL 5/87 Battery fires/Robin DR400 Rotted Firewall.

2.5. Radio Installations C.A.A. list (GI-G27 issue 13) updates the list of C.A.A. Approved Glider Radios (copy herewith). B.G.A. Proforma RAD/INST/86 is available for obtaining C.A.A. Form AD 917 (Radio Station Installation Approval) for simple communcation installations in Tugs and Motor Gliders (copy attached).

Transmitter frequencies must be calibrated at 48 monthly intervals to comply with I.C.A.O. requirements.

2.6. ROTAX ENGINES TYPE 50.5 Fuel grade/alcohol content. The attached Note from Glaser-Dirks gives guidance on alternative fuels.

2.7. Flying at Low Temperatures - deterioration of GEL Coat. The attached Note from Glaser-Dirks refers to POLYESTER GEL COAT

2.8. General Reminder - Standards of Airworthiness.

Whereas there can be genuine differences of opinion about the airworthiness implications of varying standards of what is acceptable and what is unnacceptable, B.G.A. inspectors are reminded of the possible implications of setting standards which can later be criticised by other B.G.A. inspectors. The B.G.A. will investigate written reports (often received after gliders have changed hands) to establish the airworthiness implications of such written report. The B.G.A. will not become involved in the commercial aspects or in valuations.

R.B. STRATTON
CHIEF TECHNICAL OFFICER
JUNE 1987

PREVENTION OF ACCIDENTS Club Technical Officers have an obligation on behalf of Club Committees and the B.G.A. to pass on the AIRWORTHINESS INFORMATION to Their CLUB MEMBERS.

B.G.A. TNS/5/6/87 (Item 1.6.)

ACCIDENT TO SKYLARK 4 B.G.A. 1137 (WORKS NO 1403) FIN SEPARATION IN FLIGHT 19.4.87

1. The Facts

Fin separation occurred during the application of large rudder deflections, during a winch launch, in turbulent conditions.

The glider had been damaged in a prior field landing accident, in which the rear fuselage had separated adjacent to the tail handle. This repair had not failed.

2. The Investigation

indicated that the aft fin spars had failed where cutaways are provided for the longerons. The Sternpost, carrying the rudder, failed, followed by separation of the fin.

A Slingsby modification (No 50/1/2T/2 dated 9/5/62) deleted a plywood block from the area of the lower rudder hinge, on the front face of the Sternpost, because it was redundant. It had previously supported a pulley assembly, which formed part of the elevator drive. Later modifications re-positioned the elevator drive (see diagram).

3. Conclusions

Since it can be shown that there was no design, modification or construction deficiency in this area, it can only be assumed that some dormant damage had occurred.

It is possible that accumulated damage may have occurred over a prolonged period of operation in which repeated strikes by the tailskid may have induced compression shakes in the Sternpost. It is also possible that some damage may have occurred in this glider's one and only major accident. (With the deletion of the elevator drive pulley, the inspection facilities were also removed). (The B.G.A. have on record the separation of the rear fuselage of an OLY 1 - B.G.A. 512 due to a tail skid strike at Dunstable in 1961).

4. Actions

Whereas Slingsby Aircraft (with the C.A.A.) will be issuing a Technical Instruction requiring inspections to be made to establish the continuing airworthiness of all effected sailplanes, the B.G.A. recommends the following interim checks.

a) Apply a transverse load to the top of the fin and check for movement or noises in the affected areas.

b) Inspect the Sternpost in the area of the lower rudder hinge, for signs of plywood separation, compression shakes, debonding, or damage inflicted by overtravel of the rudder.

c) Check that the Rudder Stops limit the travel at full pedal deflections, such that the rudder does not transfer loads to the fin post.

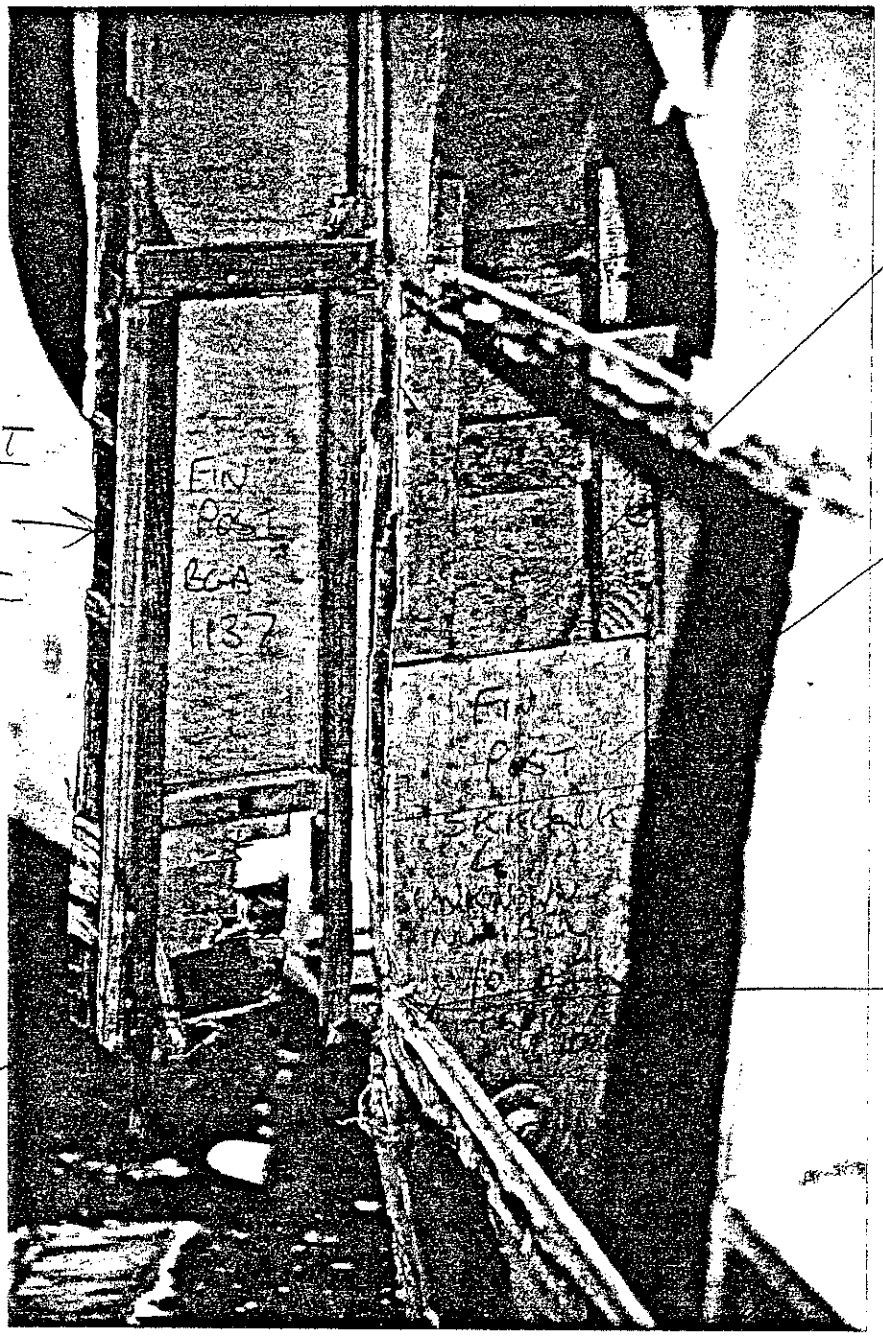
d) Inspect the forward fin structure in the area of the tailplane cut-away, for signs of plywood separation or compression shakes etc.

e) Gain access to the forward face of the base of the Sternpost, to inspect for damage generally, and specifically where the longerons pass through the fin spars. (see diagram.

f) Applicable also to Skylark 3s.

FIN FAILURE INSPECTION.

SKYLARK 4
BGA 1137



ALTERNATIVE FIN POST

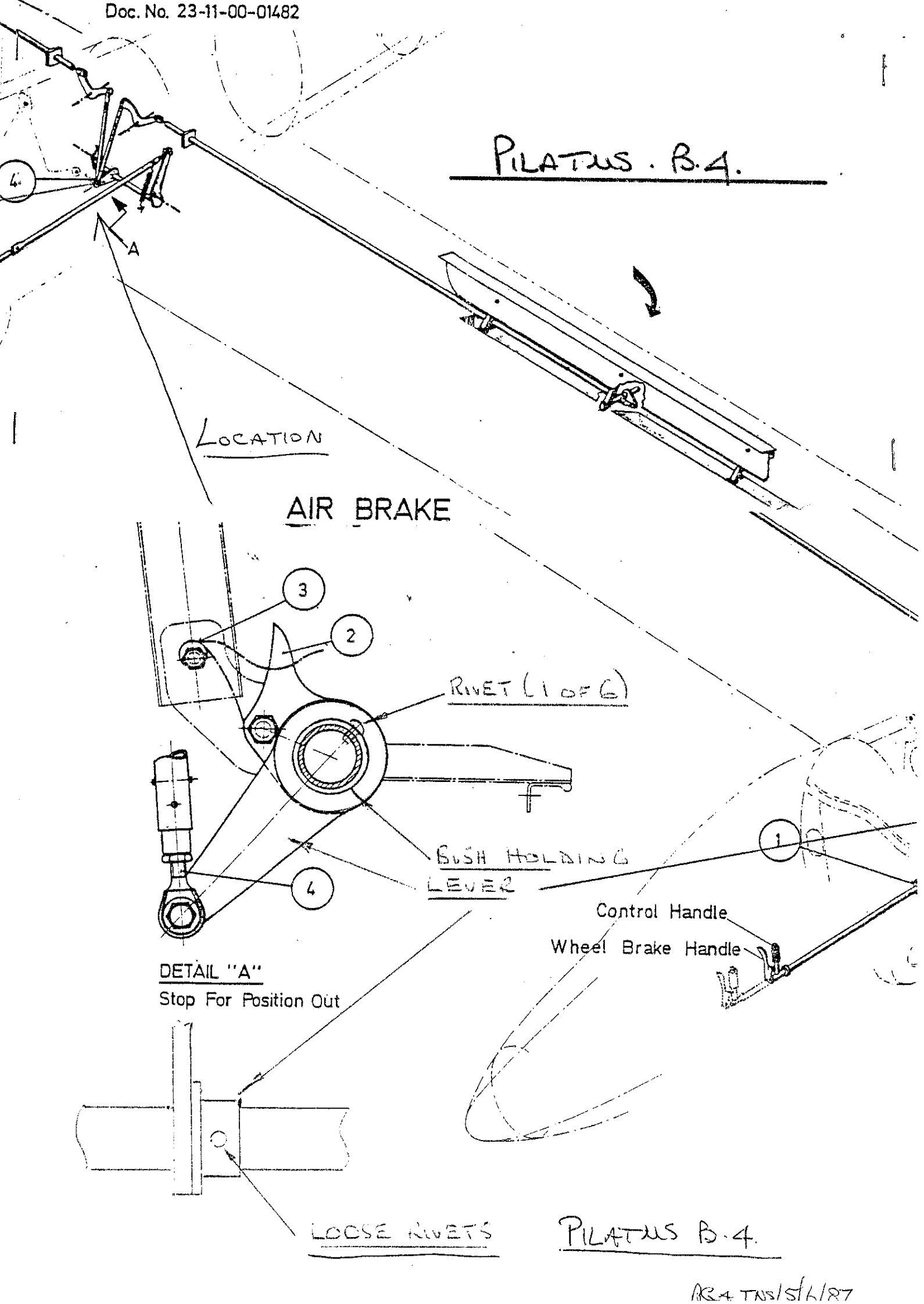
FIN POST AFTER 9/5/1962

RE-ENFORCEMENT Deleted By Modification 9/5/62.

LONGERON CUT-OUTS.

Failure BGA 1137.

PILATUS . B.4.



PILATUS B.4

BGA TNS 1/5/6/87

C.A.A. GLIDER RADIO APPROVALS.

BGA NOTE: TRANSMITTER FREQUENCIES TNS/5/6/87
ARE TO BE CHECKED TO SPECIFICATION EVERY 48 MONTHS.

PART 4 Glider Approval
G28-G57

Civil Aviation Authority
Airworthiness Division

AIRCRAFT RADIO & ASSOCIATED EQUIPMENT

ISSUE 17 Date APR'87

G No.	MANUFACTURER	EQUIPMENT
28-b	HT Communications	VHF Comm Tx-Rx, TR-7302
29-b	Dittel, W, KG	VHF Comm Transceiver FSG-40S
30-a	A K Mitchell	VHF Comm Tx-Rx AM7B/KM
31-b	GM70 Electronics Ltd	VHR Receiver HRR-1
32-b	Sharp Electronics (UK) Ltd	VHF Airband Receiver FX-209AU
33-b	HT Communications	VHF Comm Tx-Rx TR-7603
34-b	Holton Communications Ltd	VHF Comm Equipment SABRE Air Band PM5/6A
35-b	T.A. McMullin	VHF Comm. Tx - Rx TM-61
36-b	Lowe Electronics Ltd	Air Band RX. AP-12, AP-12/SC
37-b	A. Riley	VHF Comm. Tx-Rx HI-RAD-GR1
38-c	Avionic Systems (Heathrow) Ltd	VHF Comm. Transmitter-Receiver ASH-720A, -720B
39-c	Terra Corpn	VHF Transceiver TPX-10
40-a	GNB Electronics	VHF Transceiver GNB/GR1
41-b	Dittel, W.	VHF Comm Transceiver FSG-1d
42-b	Amco (Burton-on-Trent) Ltd	VHF Transceiver GE-100
43-b	Radio Systems Technology	VHF Transceiver RST-542
44-b	Dittel, W	VHF Comm Transceiver FSG50-G, FSG50
45-b	" "	" " " FSG60 Series
46-b	Avionic	VHF Comm. Transceiver FV272003
47-c	Terra Corpn.	" " " TPX-720
48-c	Avionic Dittell	" " " ATR-720 series
49-c	Becker Flugfunk	VHF Comm Transceiver AR3003/25A and B
50-a	BAF Engineering Ltd	VHF Comm. Transceiver STR-720 series
51-c	Avionic Systems (Heathrow) Ltd	VHF Tx-Rx ASH-722-1
52-c	A.O.R. Ltd	VHF AM Comm. Transceiver TR-720
53-c	Marco Avionics	VHF Comm. Transceiver HT-800/HT-830
54-c	Becker Flugfunk	" " " AR-3201
55-b	AVcomm Developments	" " " GL72A and B
56-a	Keith Ellis	" " " ELLIS 84
57-b	Dittel, W	VHF AM Transceiver FSG-4/-5

Civil Aviation Authority
Airworthiness Division

AIRCRAFT RADIO & ASSOCIATED EQUIPMENT

PART 4 Glider Approval
G1-G27

G No.	MANUFACTURER	EQUIPMENT
1-b	Becker, Max Egon.	VHF Comm. Transceiver, AR12S
2-b	Skycrafters Inc.	VHF Comm. Transceiver, TRV122
3-b	REE Telecommunications Ltd.	"TELECOMM" VHF AM Portable Radiotelephone, TRT/2
4-b	Imp.Coll of Science & Technology	VHF Comm.Transmitter-Receiver, G.T.R. Mark II
5-a	MacPherson, G.C.J.	VHF Comm. Tx-Rx., TJD-101
6-a	Barton K.	VHF Comm Tx-Rx, KB-1
7-a	Barrett E.Q.	VHF Comm. Tx-Rx, RQ/AM/1
8-b	Handley Page Gliding Club	VHF Comm. Tx-Rx, HP.18
9-a	James P.W.	VHF Comm. Tx-Rx, PJ-2
10-b	Storey G.E. & Co.	VHF Comm. Tx-Rx, TR-6701
11-b	Murphy Aircraft Communications Ltd.	"Rambler" Portable VHF Comm. Tx-Rx. MR965A
12-a	Pratelli P.	VHF Comm. Tx-Rx, CM/168
13-a	Sykes A.W.	VHF Comm. Radio Telephone AWS.1.
14-c	Pye Telecommunications Ltd.	VHF Personal Radio Telephone "Pocketfone 70" type PF2 AM8
15-c	" " "	"Bantam" VHF Comm. T-RX
16-c	GEC (Electronics) Ltd.	"Courier" VHF Comm Transceiver
17-b	Ultra Electronics Ltd.	VHF Comm. Transmitter-Receiver "Packset" Type 3A4-AG3
18-b	Dittel W, KG	VHF Communication Transceiver Type FSG-15 Series
19-c	Avionic Systems (Heathrow) Ltd.	VHF Communications Transceiver, Type ASH-360 & ASH-360P
20-c	McMullin, T.A.	VHF Communications Transceiver Type TM.360.
21-c	Becker Flugfunkwerk	VHF Communications Transceiver Type AR 10 S
22-a	James, P.W.	HF Communications Transceiver Type PJ.7.
23-b	Becker Flugfunkwerk	VHF Comunications Trisponder Type AR.7.
24-b	Electechniques	VHF Communication Transceiver EET-2000
25-b	Eds-Aire	VHF Communication Transceiver RT551G/RT551A
26-b	Dinosaur Electronics Ltd	VHF Comm Tx-Rx, ED-24
27-b	McMullin, T A	VHF Comm Tx-Rx, TM-6

ISSUE 13 Date APR'8

Civil Aviation Authority
Airworthiness Division

AIRCRAFT RADIO & ASSOCIATED EQUIPMENT

PART 4 Glider Approval
G 58-

G No.	MANUFACTURER	EQUIPMENT
58-b	WPO Communications	VHF Comm. Transceiver AIR-130 (Serial Nos P1001 to P1050)
59-c	Avionic Systems/ICOM	VHF Tx-Rx IC-A2-UK
60-c	Dittel, W	VHF Comm Tx-Rx FSG-70/-71M
61-c	S T S Inc.	VOR Transceiver AV-7600

ISSUE 3 Date APR'87

FOR APPROVAL OF COMM: Sets ONLY IN MOTOR-GLIDERS & TUGS.

BGA/RAD/INST/86

BGA PROFORMA Radio Installations

CLASS III CAA MINOR MOD: .....

(Please PRINT legibly so that this Proforma can be copied to CAA.)

1. Aircraft Type:..... Serial No: ..... Registration: .....

2. Registered Owner(s)

Address: .....

Telephone: ..... Post Code: .....

Airfield/Club where aircraft is located: .....

3. Type of Radio Equipments (Manufacturer/Type etc)

(a) .....

(b) .....

(c) .....

4. Weight: ..... Distance from CG Datum:.....

Effect on CG: .....

(NB: Where the change in weight and balance is significant, a revised weight and balance report must be raised.)

5. Power Supplies

Generator/Alternator fitted ..... Battery Capacity .....

6. Circuit Protection Rating: ..... Eqmnt Consumption .....

7. Aerial Locations: .....

.....

8. Description of Location and Installation of Equipment(s)

(Sketch on back if necessary)

9. Certificate of Compliance with BCAR Section R

			BGA INSPECTOR
(a)	R2-3	Installation not hazardous	.....
(b)	R2-3	Safely and securely installed	.....
	-	(Escape from Aircraft not effected)	.....
(c)	R3-2	Compass deviation checks	.....
(d)	R3-4	Protective devices (fuse & circuit breaker)	.....
(e)	R4-5	Cables and Wiring secured	.....
(f)	R3-1	Equipment Placarded "Class III"	.....

Date: .....

BGA OFFICE APPROVED:..... DATE: ..... PASSED TO CAA: .....

Civil Aviation Authority

General Aviation Safety Information Leaflet

Safety Data and Analysis Unit
Brabazon House
Redhill Surrey RH1 1SQ
Telephone Redhill (0737) 65966 Telex 27100

TNS/S/6/87 **3/87**

20 March 1987

1. EDITORIAL – CAA Fuel Management Video [P]

The first of what is expected to be a series of short videos is now available. The subject of the first video is Fuel Management, and the 14 minute VHS video includes refuelling, pre-flight inspection, fuel management in flight, etc. Some flying clubs may have seen this video when it was shown as part of the 'Safety Evening' during the Autumn and Winter. The video is available to all who wish to purchase it from CAA Printing and Publication Services, 37 Gratton Road, Cheltenham, Glos, GL50 2BN, and costs £6.33 inclusive of UK postage and VAT.

Poster - Please display where it can be seen.

All complimentary GASIL recipients will find enclosed a copy of a poster to remind pilots of the need to Book Out.

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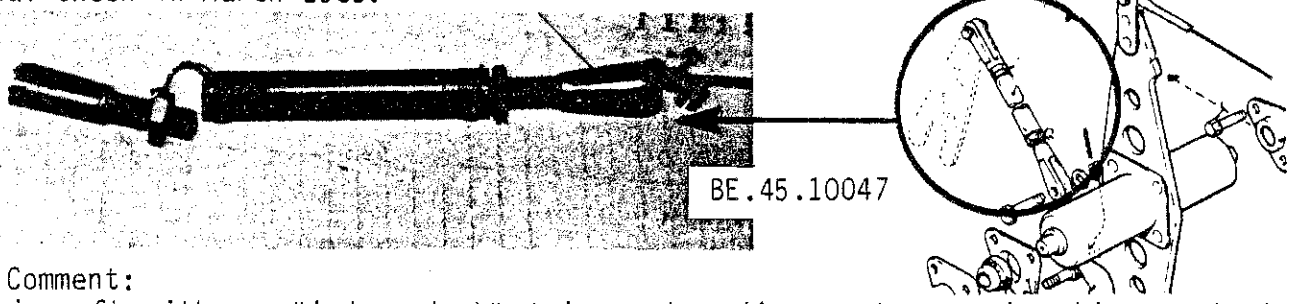
2. ELEVATOR CONTROL SYSTEM FAILURE – UNLOCKED TURNBUCKLE [P/E]

Aircraft : Beagle Pup Series 2 Registration : G-AXES
Date : January 1987
Reportable Accident at Nairobi, Kenya.

During the approach to land all elevator control was lost, the aircraft struck the ground in a nose down attitude shearing off the nose leg and damaging the propeller. Subsequent investigation revealed that control tube, Part No BE-10047-1 of the elevator controls in the rear fuselage had come undone and one fork end had dropped out. It appears that both lock nuts had loosened off and the locking wire, which was still intact, was insufficient to prevent the centre barrel from rotating due to vibration, until one fork end dropped out. The aircraft had flown 1430 hours and had been maintained to the LAMS Schedule with 62 hours flown since the previous annual check in March 1986.



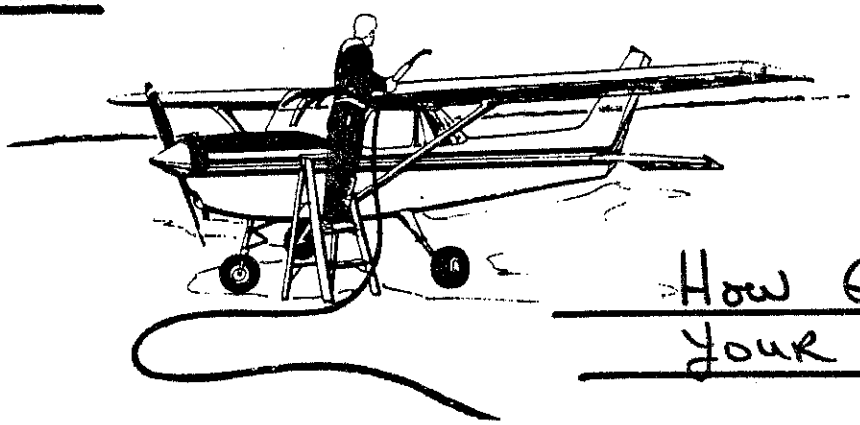
CAA Comment:
On aircraft with an "independent" trim system (i.e. not a spring bias system) it should be possible to land the aircraft without undue skill by use of the trimmer.

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]
Items which involve both operational and airworthiness interests — [P/E]

6. FUEL SHORTAGES

P



Aircraft : Cessna 150
Date : November 1986

Whilst in the circuit flying downwind, the pilot reported that he was short of fuel, and assessed the situation as an emergency landing. Priority was given and the aircraft landed safely.

Aircraft : Piper Cub
Date : December 1986

The aircraft entered the special rules zone and landed without establishing radio contact with the ATC Unit. The Pilot subsequently telephoned to say that he had suffered a radio failure en route and being low on fuel had no option but to continue and land.

Aircraft : Cessna 340 Registration : G-BBGF
Date : December 1986
Reportable Accident near Luxor,Egypt.

The aircraft crash landed about 10 miles south of Luxor in Egypt. The Pilot was slightly injured but the passenger was uninjured. The Pilot had radioed to Luxor Airport to say that his aircraft was running out of fuel. The wreckage was found several hours later.

Aircraft : Cessna F172K Registration : G-BFPH P/E
Date : November 1986
Notifiable Accident near Andrewsfield, Essex.

Aircraft had been flying for 50 minutes in the local area and when 10 NM to the East of the airfield at 2000 ft, the engine misfired. The Pilot turned towards Andrewsfield and requested a straight in approach. When approach flap was selected and the descent initiated, the engine misfired again and then stopped. The Pilot stated that a distress call was made and the emergency checks completed, at which time the fuel gauges indicated half full. A gentle landing was made in a field about 1500 metres short of the runway. The aircraft came to rest with its nose in a hedge causing minor damage to one propeller blade and the underside of the fuselage.

Subsequent examination showed that the fuel tanks were empty of usable fuel and that the fuel gauges incorrectly over-read. The Pilot stated that a visual check of the fuel contents was not made during the pre-flight checks. The Pilot's flying experience was 202 hours, with 30 on the type.

CAA Comment:
All pilots should be aware of the need to visually check fuel before flight and to monitor during flight. Perhaps OUR Video (see Item 1) could be used to remind pilots.

3. BATTERY FIRE — MAY APPLY TO (USA) TUGS. [E]

Aircraft : Piper PA34 Seneca
Date : March 1987

The pilot under instruction was asked to carry out the pre-flight and start the engines. The checks were uneventful but after the left-hand engine was started the pilot noticed a smell of burning and smoke was seen entering the cabin from around the rudder pedals.

The engine was immediately shut down,fuel and battery master turned OFF and the aircraft evacuated. The fire crew were alerted and the fire in the front baggage compartment was extinguished.

The terminal on the REBAT (CONCORD) battery, Part No. R-35 (450-035), had come adrift and caused arcing which ignited hydrogen gas emitted from the cells.The battery had initially been charged 7 months previously and inspected less than two months ago.

CAA Comment:
There have been a number of battery problems recently, three of which were caused by terminals becoming loose. These terminals are soldered into the batteries and if they can be moved this could indicate a dry or failed connection and might cause a high resistance build-up leading to an overheat.

The CAA therefore issued LTO No. 795 dated 9 April 1987 which refers to these problems as follows:

'Close examination of the battery terminals shows that the studs are hexagonal headed bolts, retained in a lead moulding with the thread uppermost. It appears that no tinning of the bolt head or adhesion with the lead moulding had taken place.

It is suspected that the loose studs caused a high resistance joint at the battery, leading to overheating of the terminal and eventual melting of the lead encasing the hexagonal head.

As a result, and pending further investigation, the CAA recommends that Owners and Operators of aircraft equipped with REBAT type R35 batteries should immediately inspect the battery terminals for signs of local overheating or looseness.

Should the battery or any cables or fittings show signs of damage, overheating or corrosion, it is strongly recommended that they are replaced as soon as possible. Additionally batteries should be inspected prior to installation to determine if any terminal studs appear loose.'

4. HOSE CLIPS CHAFING [E]

Aircraft : Piper PA38 Tomahawk
Date : March 1987
Engine : Lycoming O-235

During an annual check it was found that the hose clips for the left and right-hand side induction manifolds had chafed through the lower struts connecting the engine mounting boss to the nose gear housing just below the engine boss.

Approximately half way down the left-hand side of the same strut another chafing had occurred by the fuel pressure transmitter. The engine had to be removed to complete a repair.

The maintenance organisation carried out an inspection on all aircraft under their care. The clearance was thought to be very tight and any deterioration of the engine mounting rubber makes this even more critical.

TNS/5/6/87
G-A-3-L 5/87.

5. ENGINE BULKHEAD ROTTED

P/E

Aircraft : Robin DR400 Series (also CEA aircraft)
Date : March 1987

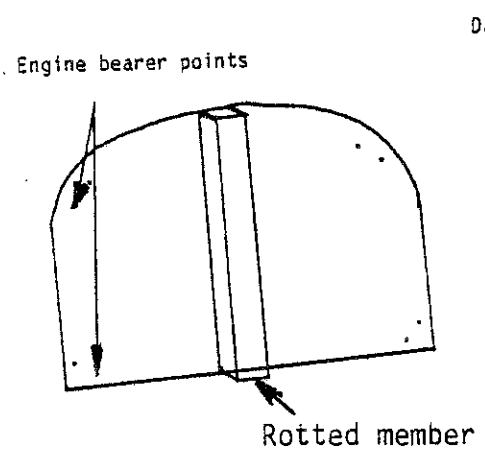
During maintenance the central vertical wooden member of the engine bulkhead was found to be completely useless due to rot caused by water ingress. The water had apparently run under the engine cowling and was trapped in this area. The damp had then been able to penetrate into the wooden structure via 1 inch metal brads that are used to hold the cowling rubbing strip in place.

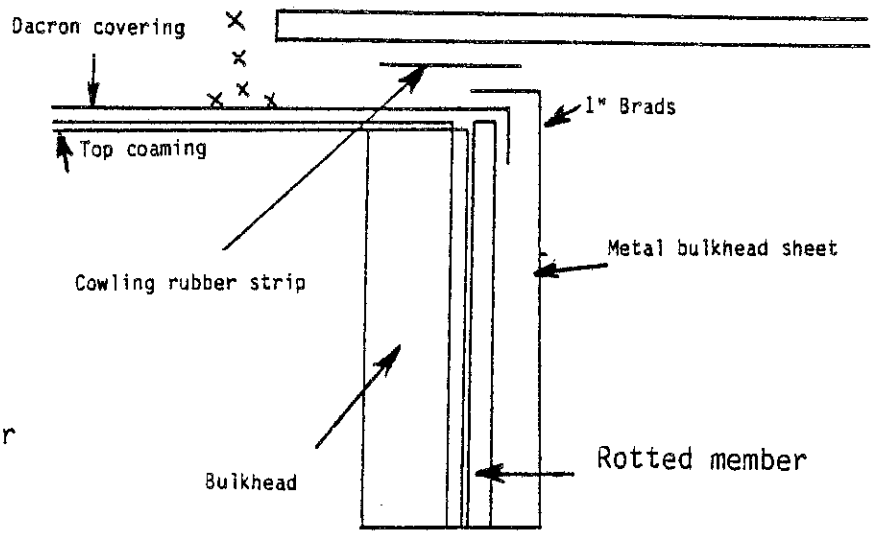
The damage had been difficult to inspect due to the metal bulkhead sheet which covers the wooden structure. The aircraft has had to be completely rebuilt and recovered in this area. The 1975 aircraft had flown 7115 hours.

The reporter strongly suspects that the problem is not related to aircraft age but to whether the aircraft has been hangared or not. This particular aircraft had not. He also suggests that whenever the engine is removed, or at some more specific period, the metal bulkhead sheet should be removed and a complete inspection made.

The reporter notes that there have been some five other cases of water damage on DR400 series aircraft.

CAA Comment:
Wooden aircraft should not be kept outside. Several have to be scrapped each year due to rot in the structure, others like this one, are lucky to require extensive only (i.e. expensive) rebuilding. The implications of undiscovered deterioration on an aircraft's structural integrity when subjected to flight loads, is obvious.





6. SHORT CIRCUIT DUE TO WATER FROM DV WINDOW

P/E

Aircraft : Beech B200 Super Kingair
Date : February 1987

During the cruise at FL225 electrical smoke entered the cockpit from behind the left hand circuit breaker panel. An emergency descent was carried out and the aircraft diverted to a nearby airport. No abnormal electrical loads were indicated but after landing the 5 amp panel lighting circuit breaker was found tripped.

Investigations revealed that there had been a short circuit on the lighting panel caused by water and de-icing fluid entering the cockpit via the left-hand DV window.

TN3/5/6/87

5. CONTROL CABLE PROBLEMS

E

Recent problems involving primary control system cables have prompted the FAA to introduce a ruling that to meet FAR Part 135 requirements, manufacturers of light aircraft must, in future, include in their maintenance manuals information and instructions on how to inspect primary control system cables. Although this information is dealt with in some detail in CAIP Leaflet AL 3-7 and in FAA Advisory Circular (AC) 43.13-1A it is felt to be prudent to remind engineers and pilots of the necessity to thoroughly inspect these cables at the required intervals.

Inspections should include checks for broken strands, "birdcaging", corrosion, wear or polishing and should include a rag or glove wiping inspection of the cable. An inspection of pulleys and fairleads should also be completed.

A PA-18 CUB (TAG) WAS FOUND TO HAVE BADLY FRAYED ELEVATOR CABLE NEAR THE REAR STICK!

14. DITCHING FOLLOWING ENGINE FAILURE

P

Aircraft : DHC-1 Chipmunk 22 Regn : G-MUNK
Date : September 1986
Reportable Accident 2nm South of Harwich Harbour

After about 30 minutes into a flight between Southend and Ipswich the pilot was performing aerobatics. On completion of a slow roll the engine suffered a loss of power and after turning towards Harwich the pilot put out a MAYDAY call to Wattisham while at a height of about 1000ft. He completed checks for a second time before hitting the water just as the engine appeared to regain power. The aircraft nosed rapidly down and turned on its back. The surface wind was less than 5 knots with a calm sea and negligible swell. The pilot was wearing a lifejacket. At touchdown, which was unexpected probably due to the lack of normal ground features, the aircraft had not been slowed to its minimum flying speed but was at about 60 kts without flaps. The pilot, now submerged, released his harness, opened the cockpit in the normal way and escaped to the surface where he was picked up by a sailing boat, after less than five minutes in the water. He was transferred by helicopter to hospital for a check and was later released with only slight scratching and bruising.

The pilot commented that although his straps were tight there was still sufficient movement in the severe deceleration to allow his head to hit the instrument coaming. Also he had not had enough time to complete his full emergency checks. The canopy had been shut and he was not at minimum flying speed on impact - flaps were not selected.

CAA Comment:
Although the exact cause of the power loss is unknown because the aircraft sank, it is suspected that the probable cause was momentary fuel starvation in the slow roll. This aircraft was NOT FITTED WITH ANY INVERTED FUEL OR OIL SYSTEM and it could be expected to cut out, albeit only briefly, after such manoeuvres. It appears that the engine was about to pick up just prior to impact which was unexpected due to the poor visual cues from a calm sea.

Know your aircraft, always perform aerobatics at a safe height and beware of poor visual references when over the sea. **Low level aerobatics was the cause of four fatal accidents in 1986.**

BCA TAS/5/6/87

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9/97/LTO/795

BATTERIES IN TUGS ETC. 9 April 1987

BATTERIES BY GILL/REBAT/CONCORD

LETTER TO OWNERS/OPERATORS NO. 795
BATTERY TERMINAL FAILURE

A recent incident occurred on the ground whereby a Piper PA 34-200T Seneca aircraft suffered from a fire in the nose compartment. Preliminary investigations revealed that the probable cause was ignition of hydrogen gas (emitted from the main battery) as a result of arcing from a loose battery terminal.

Examination of the battery revealed that one of the connection studs had separated completely and extensive fire damage was apparent to the vent caps and surrounding area. The aircraft also suffered from fire damage in the vicinity of the battery location. The battery was a Rebat type R35.

Similar incidents have also been recorded with this type of battery, whereby the terminals have become detached in service or found loose during inspection prior to installation.

Close examination of the battery terminals shows that the studs are hexagonal headed bolts, retained in a lead moulding with the thread uppermost. It appears that no tinning of the bolt head or adhesion with the lead moulding has taken place.

It is suspected that the loose studs caused a high resistance joint at the battery, leading to overheating of the terminal and eventual melting of the lead encasing the hexagonal head.

C[redacted]d/.....

TN 3/5/6/87

für Fa. GLASER-DIRKS, Bruchsal
Übersetzung

FUEL

Re.: Fuel for ROTAX engines type 505 — March 1987
Alcohol content

1) In the engine manual, page 5, a 2-stroke mixture of Premium fuel of min. 96 octane (RON) or AVGAS 100 LL is specified.

2) Due to lead reduction in fuels, more and more alcohol is added to avoid knocking, e.g methanol, ethanol, isobutyl-alcohol, methyltertiaerbutylether etc.

3) The various alcohols have different properties like calorific value, air requirement etc.

4) Disadvantages of alcohol in fuel:
   - reduced storage capacity
   - highly hygroscopical
   - oil mixing is critical if more than 10 % alcohol (depending on kind of alcohol - methanol is particularly unfavourable)
   - if more than 10 % alcohol in fuel, the carburetor calibration is no more correct.

5) As per latest informations of trade-mark companies (e.g. SHELL), the alcohol content in European fuels is little less than 10 %, but max. 3 vol. % methanol only.

   Such fuels are also used in the ROTAX Research Department in considerable quantities, without problems.

6) In consequence, our previous 5 % alcohol-in-fuel limit can no more be maintained and is increased to max. 10 %.

7) As the engine operator can hardly check the alcohol content in fuels, and as he will not be able to get reliable values from the fuel supplier, the best recommendation is:

   Use of fuels of recognized brands only!

   In case of doubt, 50 : 50 mixing with AVGAS 100 LL (or use of AVGAS 100 LL).

   Recognized trade-marks cannot diverge from defined standards, unlike discount traders (see e.g. article in AEROKURIER 4/1986, page 396).

Member: ALCOFUEL

BGA Note. We have no evidence, yet, that alcohol has been added to UK MoGAS.

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LBA anerkannter Herstellungsbetrieb IB 25
LBA anerkannter Luftfahrttechnischer Betrieb IIA 279

CUSTOMER INFORMATION 000/1/87

Subject: Flying at low temperatures

Concerning: All fibre reinforced plastics (FRP) sailplanes with polyestergelcoat finish

Reason: On FRP sailplanes a polyestergelcoat is used as surface coating. This gelcoat sprayed into the production mould is also sprayed after demoulding on the glued joints etc.
Only with such a polyestergelcoat it is possible to achieve the smooth finish glider pilots require for aerodynamic reasons.
Unfortunately this material has the disadvantage that it is very brittle, especially at low temperatures.
So there is the danger of cracks in the coating at low temperatures as proven by numerous tests by the paint manufacturers.
The danger of cracking seams to increase if the glider was stored before at high humidity.
With gliders in carbonfibre construction the danger is even higher as the difference in coefficient of thermal expansion between coating and fibre material is the largest.

Measures: When doing high altitude flying the outside air temperature should be measured. Flights in temperatures below 20°C (-4°F) not be made.
Otherwise cracking of the gelcoat is likely and not covered by guarantee.

Author: Dipl.-Ing. W. Dirks Bruchsal 4, April 2 1987

W. Dirks