#### **B.G.A. TECHNICAL COMMITTEE**

#### TECHNICAL NEWSHEET

#### TNS 11/12/84

The last issue for 1984 - the B.G.A.'s Revised Compendium of Airworthiness Directives, Mandatory Modifications and Special Inspections, will be re-issued with TNS 1/85 to all bona-fide subsribers. HAVE YOU RENEWED FOR 1985?

#### PART 1 AIRWORTHINESS "AGGRO"

- 1.1. Kal3- 'A' Brackets in Wing Root cracks. This defect is recurring, and failure may result in inadvertent operation of speed-brakes. Item should be included in DAILY INSPECTION for all variants. Check also for correct rigging of the system to prevent overload. Could apply to Ka7 and other types. (Reported by Lasham).
- 1.2. T.65 D 'YEGA' Failure of the Flap Drive at the Pilot's operating quadrant. Drive assemblies should be inspected for signs of wear/cracking etc. (Reported by P.A. Taylor).
- 1.3. <u>Centrair 101 Series Upper Rudder Hinge</u>. Bulletin 101-4 requires mandatory inspection. (copy herewith).
- 1.4. ASW 20 Flap Malfunction If the lock-nuts on either side of the flap-lever linkage become loose, the flap-lever will fall to the right out of its locking position, and the flaps may go 'negative' resulting in a heavy landing. (Reported by John Reeves).
- 1.5. <u>Ka7 Air Brake Fitting</u> (behind rear seat). Reinforcement, if required, can be incorported as per sketch K7 1/84 proposed by B.F. Wilson (attached).
- 1.6. ASK 21 (Tech Note 17 attached) Wheel-Box Cut-out. Requires inspection for fouling.
- 1.7. Nose-Tow Hooks for Aerotowing B.G.A. Advisory Note dates 13.11.1984 (herewith), is self-explanatory.
- 1.8. Grob 109 Series Motor Gliders Main Undercarriage Beam failures. There have now been several total failures through holes drilled in these beams to accommodate bolts securing footsteps, pipe-lines, fairings etc. Secondary damage will include propeller blades etc. Undrilled beams should be installed a.s.a.p. Until replaced, frequent dye-penetrant inspection is required.
- 1.9. 'Yega' (Sport). Elevator Bearing loose in G.R.P. Excess back lash in the elevator systems has been traced to the bearing assembly being insecure in the G.R.P. Structure. An immediate inspection is required. (Reported by C. Nightingale and Ken Blake to B.G.A./Slingsby's).
- 1.10 Tug Pa-18 150 Cub Seat Mounting failure due to fatigue between cross drilled mounting holes, and tube ends. The duty cycle of seats used in gliding operations is high, and frequent detailed inspection is recommended. (Southdown G.C.)
  - 1.11 <u>Pa-18 150 Brake-Pedal Mounting Bracket</u> failure. As above, high duty cycle results in extensive cracking. Frequent inspection is recommended (Southdown G.C.)
  - Tow Hook Maintenance The A.I.B. have commented unfavourably on the condition of some installations following their investigation of two recent fatalities. Specifically (a) Schweitzer type (latchover) hooks worn, and in particular indented (or filed) so that Release Loads would be more adversely effected by tow-rope loads. (b) Cables "bitten" into conduits at either or both ends. (Some conduits are metal, but nylon is preferred). (c) Banner towing Installations may have floor mounted releases. These are not acceptable for glider-towing, when negative 'g' loads may make access impossible. (e) Tow Rope Strengths consistently in excess of that certificated in

the tug flights manual. (f) <u>B.G.A. Strongly</u> recommend immediate attention to these criticisms. Tow Hooks may be tested in accordance with B.C.A.R. Section K4-10 as follows:-

Apply load of 25% of the nominal strength of the tow-rope

- i) horizontally backwards
- ii) backwards & upwards at 40° to the horizontal
- iii) backwards & downwards 20° to the horizontal
- iv) horizontally backwards and 25° sideways, each way.

In all cases, the Pull Release Load shall not be less than 5 lbs and not more than 30 lbs

- (g)  $\underline{B.G.A.}$  Note More than one automatic releasing hook is under consideration, development & testing. You will be kept advised.
- (h) Mirrors How effective are they?
- 1.13 Tug Related Defect/Incidents. Extracts from G.A.S.I.L./A.I.B. Bulletins (Copies herewith)
  - a) Socata Rallye Electrical fire between Starter lead and flex oil cooler pipe.
  - b) PA 25 Pawnee Fuel system crossed.
  - c) PA 36 Pawnee Undercarriage beam failure (identical to Grob 109)
  - d) Air Cleaner elements disintegrating (two cases).
  - e) Aircraft damaged after limitions exceeded.
  - f) Contaiminated fuel (yet again!).
  - g) Propeller/Pilot accident Serious injuries
  - h) Gypsy Engine malfunction Carb Icing?
  - j) Gypsy Engine Crankshaft failure Glider Tug.
  - k) V.W. engine. Fuel Pump failure
  - 1) Fatal tug accident (Dunstable)

 $\underline{\text{B.G.A. Note}}$  With extension of the L.A.M.S. to 150 hrs. D.I.Y. maintenance by Club pilots at 50 hr. intervals requires more detailed inspection, and recognition of the failures reported herein.

#### PART 2 GENERAL

- 2.1 <u>C.A.A. Permits-to-Fly</u> will not in future be issued to aircraft to 'permit' glider towing. Tugs must, therefore in future, be eligible for certification.
- 2.2. New Types Approved by B.G.A. Ka 23
- 2.3 <u>Inspector Renewal</u> Applications (£10.00) are now overdue, and insurance cover will automatically lapse. Please respond a.s.a.p. otherwise this will be your last TNS!

Best Wishes from the Technoial Committee for Christmas and the New Year to you all.

R.B. STRATTON CHIEF TECHNICAL OFFICER 5th December 1984 A 1.13, No: 9/84

## PROPELLOR/PILOT ACCIDENT.

Ref: EW/G84/07/20

Aircraft type and registration:

Rallye Club G-AXCL (Light single engined fixed wing aircraft)

Year of manufacture:

1969

Date and time (GMT):

5 July 1984 at 1505 hrs

Location:

Long Marston Airfield

Type of flight:

Private

Persons on board:

Crew - 1

Passengers - Nil

Injuries:

Crew - 1

Passengers - Nil

Nature of damage:

Damage to starboard wing tip

Commander's Licence:

Private Pilot's Licence

Commander's Age:

28 years

Commander's total flying

experience:

140 hours all on type.

Information Source:

Police Report

The pilot intended to fly from Long Marston to Denham and return. Whilst taxiing, the aircraft struck the corner of a hanger with the starboard wingtip. The pilot briefed his passenger on the use of the toe brakes and then got out onto the port wing still wearing his headset. As the headset lead became taut the pilot fell forward off the wing into the propeller. There was a bang and the engine stopped. The pilot sustained very serious injuries including the amputation of his left arm.

A.I. B No: 9/84

## CONTAMINATED FAIL.

Ref: EW/G84/04/14

Aircraft type and registration:

Grumman AA5 G-BBGH (Light single engined fixed wing aircraft)

Year of manufacture:

1973

Date and time (GMT):

11 April 1984 at 1635 hrs

Location:

Portmoak

Type of flight:

Private

Persons on board:

Crew - 1

Passengers - 3

Injuries:

Crew - Nil

Passengers - Nil

Nature of damage:

Nose undercarriage collapsed, dent in mainplane, cracked wingtip.

Commander's Licence:

Private Pilot's Licence

Commander's Age:

24 years

Commander's total flying

experience:

111 hours (of which 7 hours were on type)

Information Source:

Aircraft Accident Report Pro forma

The aircraft was on a pleasure flight from Glenrothes when, during the return part of the flight, the engine began to lose power. Efforts made to restore power, which did not include use of the electric fuel pump, were unsuccessful and the pilot decided to land at Portmoak gliding site which was nearby. Engine power continued to decrease and on final approach the engine stopped completely causing the pilot to undershoot his intended landing position. The landing was made within the airfield with the stall warning sounding continuously. The pilot found that he was unable to flare the aircraft and as a result the nose undercarriage collapsed.

Examination of the aircraft revealed evidence of particle and water contamination throughout the fuel system together with several leaks of long standing between the tank outlets and the engine driven pump inlet giving rise to the possibility of air entrainment into the fuel supply to the engine.



Registered No. 422605 England Registered Office as address

Telephone 0533 531051

Administrator and Secretary: Sarry Rolfe

Kimberiey House, Vaughan Way, Leicester

## British Gliding Association

13th November, 1984.

Advisory Note

Ref: TNS/12/84

TO: AGENTS/IMPORTERS OF GLIDERS

## NOSE TOW HOOKS FOR AEROTOWING

Two recent fatal accidents to unsuspecting tug pilots has re-emphasised the inherent dangers associated with aerotowing from c.g. related tow hooks, particularly in turbulent conditions.

The B.G.A. Instructors' Committee met on Saturday 3rd November, and voted in favour of a B.G.A. requirement for nose hooks to be made mandatory.

Theoretical studies made on behalf of the Technical Committee substantiate this recommendation.

The C.A.A. delegate to the Joint Airworthiness Requirements Committee, has been asked to draw the attention of the J.A.R. 22 Working Group, to this problem.

The B.G.A. Executive Committee at its meeting on Wednesday, 7th November, provisionally endorsed this policy.

This note is to advise those concerned of the probability that the installation of nose hooks may well become a prerequisite, in the future, for B.G.A. Certification.

R.B. STRATTON

CHIEF TECHNICAL OFFICER

Patron President

Vice Presidents

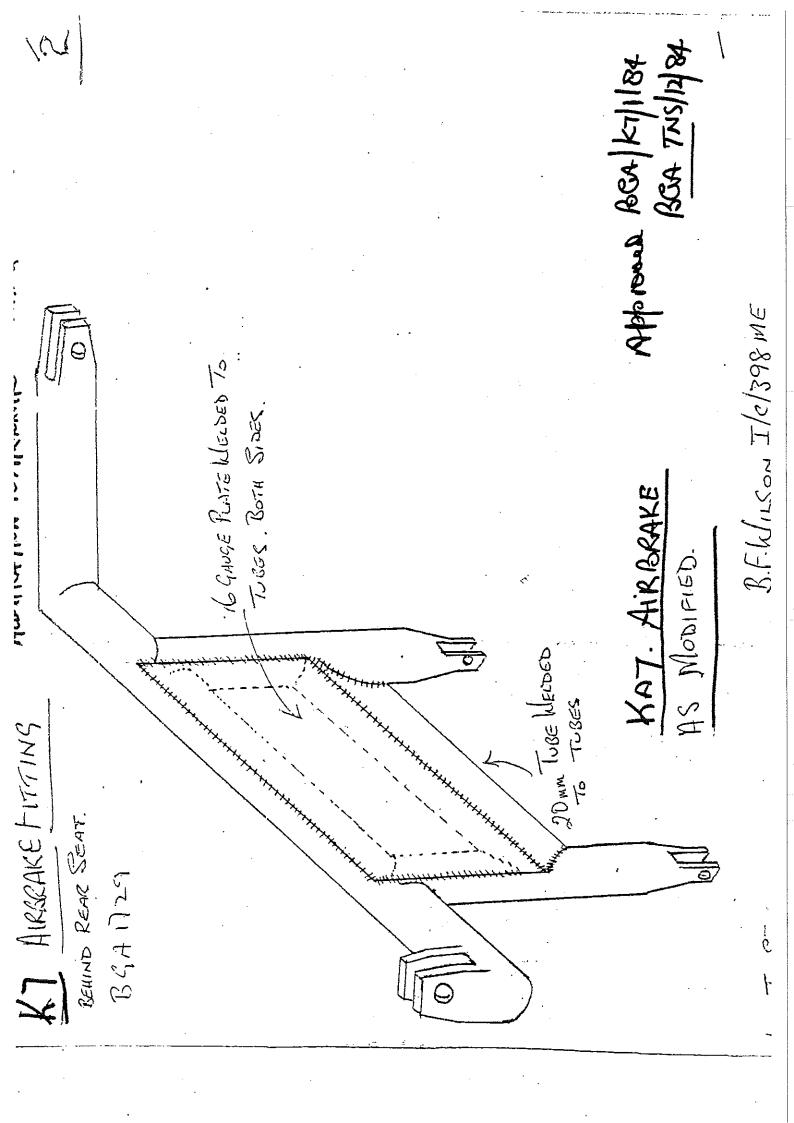
HRH The Duke of Edinburgh KG

Basil Meads MBE

Air Chief Marshal Sir Theodore McEvoy KC3 C3

Sir Peter Scott C8E OSC LLD Or A & Slater MA FRMetS

K G Wilkinson BSc FCGI DIC CEng FRAeS



# G.A.S.I.L 11/84.

INS /12/84

### 9. FORCED LANDED AFTER AIR FILTER DISINTEGRATED

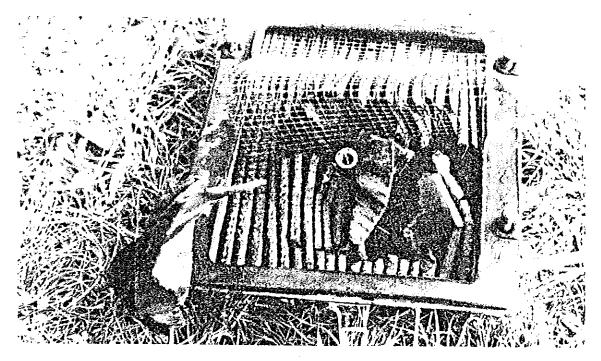
P/E

Aircraft : Cessna 152 Date : August 1984

# ALL TYPES OF AIRCRAFT.

During a dual training exercise with a student pilot a series of circuits had been satisfactorily completed. At about 450 ft when climbing away the engine note suddenly changed and the rpm fell significantly. The instructor took control and landed without damage on the sterile area beside the runway (contractor plant was working on that end of the runway itself).

The air filter had disintegrated and a loose piece had become lodged in the carburettor, partially blocking the airflow. A new filter was fitted and engine performance was returned to normal. The filter was very dirty and clogged. The operator's fleet was checked and all were given new filters. The reporter commented that this was an example of the generally poor standards of maintenance on these particular aircraft.



#### CAA Comment:

Air filters should be kept clean and uncontaminated, as collapse of this simple item can have very serious consequences. This also makes economic sense since obstruction of the free flow of clean air will result in an inefficient, fuel-gobbling engine. This can be demonstrated by keeping careful fuel records following fitment of a new filter (on a car or an aeroplane). The LAMS Schedule Issue 2 Section 7 Item 32 requires inspection of air filters for condition and cleanliness at 50 hour intervals.

#### 10. CRANKSHAFT FAILURE

- PLIDER TUB.

Ε

Aircraft : Auster 6A Date : August 1984

Engine : Gipsy Major MK 10

While flying at 700 ft agl a loud bang was heard from the engine with a shudder through the aircraft. About one second later a second loud bang was heard, followed by a loud rushing sound from the exhaust. The pilot assumed exhaust or a cylinder head failure. As airspeed started to decrease he opened the throttle and realised that the propeller was not responding. A force landing was made without damage. The engine crankshaft taper nose was found to have failed. The rpm indicator was found to have gone round a second revolution to the cruise rpm value. The engine had run for 886 hours with 114 since inspection.

A 1. B, No: 9/84 GYPSY ENGINE - CARBITCE?

Ref: EW/G84/06/20

Aircraft type and registration:

Tiger Moth DH82A, G-BINH (Light single engine aircraft)

Year of manufacture:

Not known

Date and time (GMT):

19 June 1984 at 1215 hrs

Location:

Shipdham Airfield, Norfolk

Type of flight:

Instruction

Persons on board:

Crew - 2

Passengers - Nil

Injuries:

Crew - 1, minor

Passengers - N/A

Nature of damage:

Damage to the undercarriage, propeller, engine cowlings, wings, fin and

rudder

Commander's Licence:

Commercial Pilot's Licence with IMC, night and full Instructors rating

Commander's Age:

52 years

Commander's total flying

experience:

6056 hours (of which 323 hours were on type)

Information Source:

Accident Report Pro forma completed by the pilot-in-command.

The pre-flight checks and engine run were carried out in preparation for an instructional flight and everything appeared to be serviceable. The take-off was normal but at approximately 25 feet the aircraft's response to the controls was sluggish and it failed to maintain a rate of climb. The pilot-in-command decided to carry out a precautionary landing. During the approach the rate-of-sink increased causing the aircraft to touch down heavily and nose over. At the time of the accident the weather was; wind calm, temperature plus 24°C, humidity 97 percent.

G.A.S.I.L 11/84.

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#### 9. FORCED LANDED AFTER AIR FILTER DISINTEGRATED

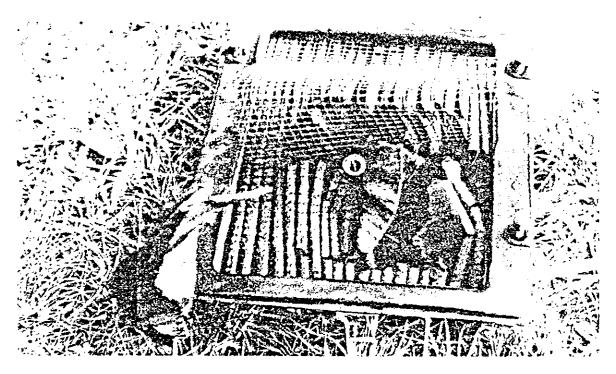
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### 3. ENGINE FIRE AFTER SHORTED LEAD HOLED OIL PIPE

GASU-10/84 E

Aircraft : Socata MS893A Rallye

Date : April 1984 (received September 1984)

ELECTRICAL BURNING

Engine : Lycoming 0-360

The starter lead at the starter position shorted to the flexible oil cooler pipe braid (earth contact being made to the engine frame via the braid) burning through the rubber pipe. Oil was sprayed onto the rear of the engine. During the next start-up the hot oil ignited resulting in a fire causing damage to the wiring, flexible pipes and cowling. The starter lead and all pipes had been clipped together with a Tyrap, but these have now been separated by the use of pipe clips etc. The aircraft had flown 938 hours.

#### CAA Comment:

The modification to separate the pipe/leads is recommended to all operators.

#### 4. MAJOR FUEL SYSTEM ERROR

P/E

Aircraft : Piper PA25 Pawnee

Date : June 1984

The aircraft was delivered for a 100 hour check with defects which included a fuel pressure gauge stuck just off the bottom stop and occasional loss of power on take-off. It was found that the fuel supply and the fuel by-pass line from the bulkhead to the engine driven pump had been crossed over even though the bulkhead is marked. The aircraft had flown 81 hours since a rebuild.

FUEL FLOW.

#### CAA Comment:

The loss of power and low fuel pressure should have alerted the pilots - gauges are not always wrong! After disturbance of the fuel system, a fuel flow check should be made as near to the carburettor as possible.

2

#### CAA Comment:

This is the first failure of this type reported to us

6. Aircraft : Piper PA36 Pawnee Brave - Registration G-BIPJ

CASIL 10/8

Date : July 1984
Reportable Accident near Shoreham

INSPECTION AFTER DAHAGE.

The aircraft had recently flown following rebuild after an accident in 1983 during which the landing gear was torn from the airframe.

After a perfect three point landing on a strip familiar to the pilot, at about 45 kts the left hand landing gear leg failed. The wing dropped resulting in considerable damage. The leg which failed was the one torn off in the previous accident. It was reported that the leg had not been x-rayed before it had been re-fitted.

#### CAA Comment:

Careful checks are essential, including, if necessary, x-ray of parts likely to have been overloaded. When an aircraft is rebuilt following an accident, Pink Airworthiness notice No 7 'Return to Service of Aircraft Items Recovered from Aircraft involved in Accidents/Incidents' is relevant.

#### 7. DISINTEGRATING AIR FILTER

Aircraft Partenavia P68B

Date July 1984

Engine : Lycoming IO-360

The pilot reported that there were large differences between the left and right hand engine fuel flows. The right-hand engine was found to be running rich because the Bendix type RSA-5AD1 injector was blocked by foreign material in the impact tubes. Two of the four tubes were blocked and the others restricted. The material consisted of fluff, dust and grit. The fluff appeared to be from the air filter which was in poor condition having areas of bare wire mesh through which dust and grit could easily have passed.

## AIRCRAFT LIMITATIONS

LimitATIONS.

P

Aircraft limitations may be stated on the Certificate of Airworthiness or in the flight manual and take a variety of forms including:

- maximum permitted airspeeds in various configurations
- permitted manoeuvres
- maximum positive and negative 'g'
- weight and centre of gravity limits
- permitted type of use

There may also be extra limitations separately in Flight Manual supplements stated because of special equipment or use of an individual aircraft.

Pilots must adhere to these limitations, failure to do so can be illegal, thereby possibly invalidating the insurance and can result in damage (or destruction) of the aircraft. Furthermore, if pilots suspect that they have exceeded an aircraft's limits they must report it in order that the aircraft can be inspected. It is not fair to other pilots to keep quiet about it and hope for the best; today's heavy landing could be tomorrow's gear collapse.

Aircraft Socata Rallye 150 ST

Date July 1984

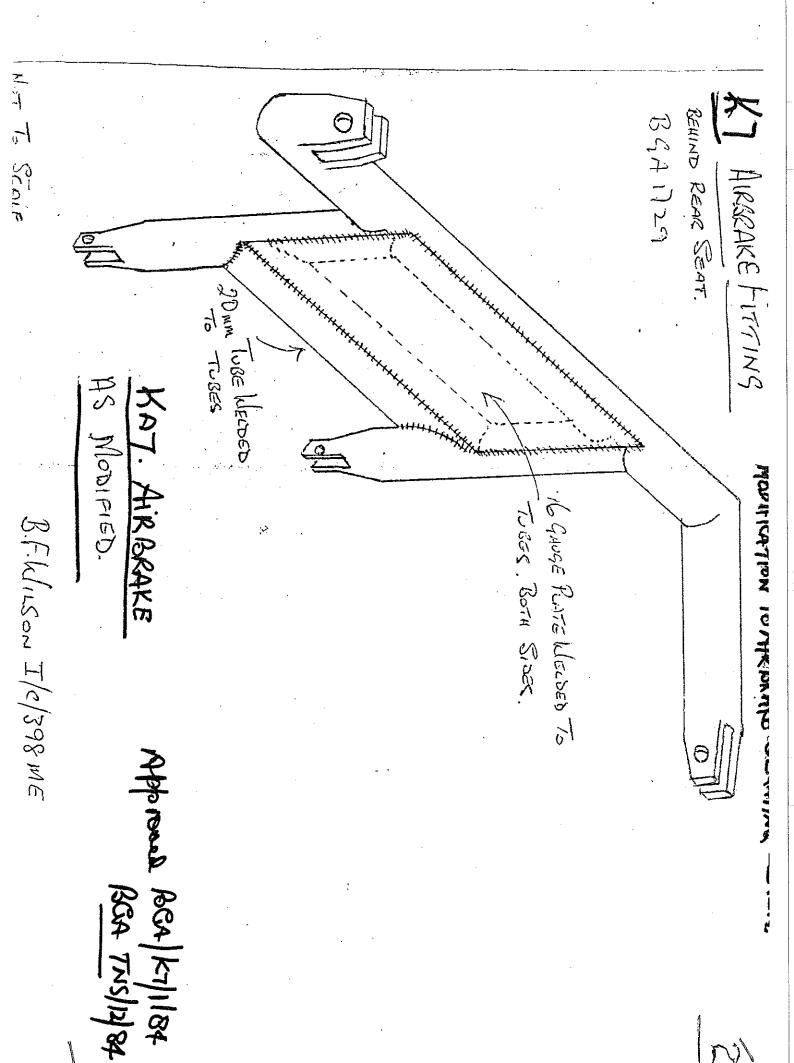
After landing the pilot discovered that there was some distortion of the skin on the left hand wing. The pilot (with one passenger) had performed two spins to the left followed by two loops. The aircraft had flown normally with a satisfactory landing.

#### CAA Comment:

This aircraft can be used for certain aerobatic manoeuvres provided the weight is not above 17001b, no baggage, the rear seats are empty with cushions and the back of the seats removed and fuel limited to 22 gallons. In this condition the limit load factors are stated in the Flight Manual to be +4.4g - 1.8g. However, there is a UK Supplement, to provide an extra strength margin, that limits the g to 3.0 in any manoeuvre. GASIL 8/84 item 6 gives a more detailed explanation.

Before flight pilots should check the Flight Manual or Pilots Operating Hand Book for the existance of any Supplements. This is because there is no cross reference in the subject area in the Manual to the fact that a Supplement affects that area.

Some years ago Airworthiness Notice No 51 was issued following detection of excessive g loadings on certain aircraft designed to Utility or Semi aerobatic Category structural strength requirements (like the Tomahawk). Pilots should be aware that limit loads on such aeroplanes can be exceeded in manoeuvres other than aerobatics.



## centrair



## BULLETIN de

BCA TUS 11/12/84.

SERVICE N° 101-4

Aérodrôme 36300 Le Blanc

Planeur CENTRAIR 101,101A

Nbre Page 1/1

Objet: Mandatory inspection of the upper rudder hinge.

For gliders number 101 XX 001 to 101 XX 157 inclusive and number 101 XX 162.

Following the discovery of two failures of the upper rudder hinge pivot, it is imperative to immediately check the upper rudder hinge pivot by disassembling the rudder:

- 1. Remove the rudder control cables (rep.15 fig.22)
- 2. Remove the bottom rudder hinge retaining bolt (rep.3 fig.33)
- 3. Pull the rudder back slightly (to clear the bottom rudder hinge) then lift rudder to disengage it from the vertical fin.

Proceed to visually check the upper rudder hinge pivot.

- 1. Check pivot weld by pushing down on the pivot
- 2. Check the pivot for signs of seizure

If nothing abnormal is found, grease the pivot and reassemble the rudder.

Making sure that full rudder travel is obtained before reconnecting the rudder cables.

In the case of a failed pivot or seized pivot the aircraft must be grounded until repair kit number one (1) is installed. This repair kit consisting of upgraded parts must be ordered from the manufacturer CENTRAIR immediately.

In the USA contact: CENTRAIR USA, P.O.BOX 34052, TRUCKEE CA 95734. (916) 587-1648.

Enclosed: Pages n° 44 and 64 of the parts catalogue "Tableau Composition Illustré"

The french original of this B.S. has been approved by the VERITAS under the date of sept. 20, 1984.

The translation into english has been done by best knowledge and judgement; in any case of doubt the french original is authoritative.

CENTRAIR tél (64) 87 07 86 teles 050 070 APPROBATIO: SERVICES OFFICIELS S.

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Classification

RECOMMANDE POUR INFORMATION IMPERATIF

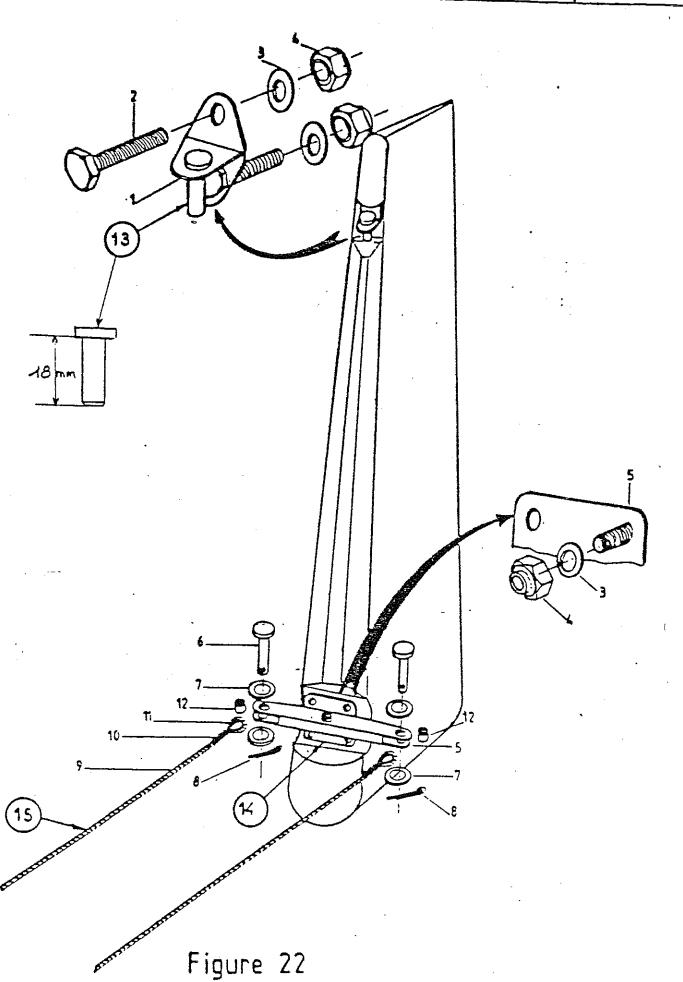
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Sheet 1 No. of sheets: 2

### ASK 21 Technical Note No. 17

Alexander Schleicher Segelflugzeugbau 6416 Poppenhausen

Subject:

Inspection of the wheel box cutout in the fuselage. LBAHAD 84 180

BRA/TNS/12/84. Affected gliders: Serial numbers 21 194 thru 21 228 inclusive.

Compliance:

Prior to the next take-off.

Reason:

With the above serial numbers of the ASK 21 model, the wheel box cutout in the fuselage presumably was not cut out far enough. When retracting the main wheel, this may cause the rear edge of the wheel box to foul the edge of the wheel box cutout (see sketch).

Action:

- 1. Jack up the fuselage safely and dismount the wheel fairing. As described in sketch 1 measure the distance A from the outside of the wheel box ① to the washer ② at the fulcrum of the wheel fork. Compare the above distance A with the distance to the trailing edge of the wheel box cutout in the fuselage; which must be by 5mm longer!
- 2. If this is not the case, then the wheel box cutout must be enlarged accordingly.
- 3. Check whether the glue joint between the fuselage shell at the edge of the wheel box cutout and the anchoring strap fillet 3 is damaged.
- 4. If a damage is found, re-glue this glue joint (see Repair Manual). Then preserve again the repaired edge of the wheel box cutout (100 parts in weight Epikote 162, 38 parts in weight Epikure 113).
- 5. Now reassemble the wheel fairing.

Material & drawings: -

See point "Action".

Mass & C.G.:

This action has no influence on the C.G. .

Notes:

E Clark to Ar E 144

The actions 1 thru 4 may be accomplished by a competent person and must be certified in the glider's logbook by a licensed inspector.

Poppenhausen, October 1, 1984

ALEXANDER SCHLEICHER Just forther S (L.W. Jumtow)

The German original of this Technical Note has been approved by the LBA under the date of Oct.16, 1984, and is signed by Mr.SCHMALJOHANN. The translation into English has been done by best knowledge and judgement; in any case of doubt the German original is authoritative.

Alexander Schleicher Segelflugzeugbáu 6416 Poppenhausen Sheet 2 ASK 21 Technical Note No. 17 No. of sheets: 2